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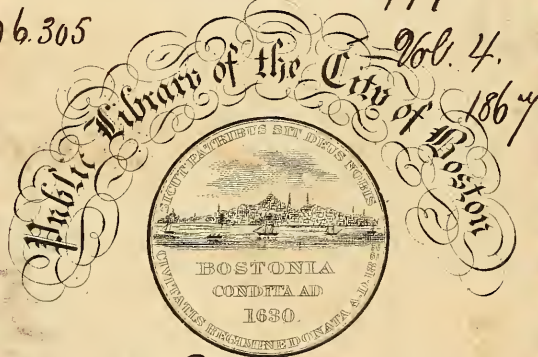
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THE

PHILADELPHIA

PHOTOGRAPHER.

EDITED BY EDWARD L. WILSON.

VOLUME IV.

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1867.



## 206 300- EMBELLISHMENTS.

*January.* Cabinet Portrait.  
By WM. NOTMAN.

*February.* Instantaneous Marine Views.  
By J. C. BROWNE.

*March.* Portrait Studies.  
By N. SARONY.

*April.* Cabinet Portrait.  
By WENDEROTH, TAYLOR & BROWN.

*May.* Cabinet Portrait.  
By F. S. KEELER.

*June.* View. Falls of Minnehaha.  
By J. CARBUTT.

*July.* United States Capitol Building.  
By WM. BELL.

*August.* Cabinet Portrait.  
By J. H. KENT.

" Photolithographic Study.  
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*September.* Cabinet Group.  
By J. H. KENT.

*October.* Copy of Engraving.  
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T H E

# Philadelphia Photographer.

Vol. IV.

JANUARY, 1867.

No. 37.

## THE SULPHO-CYANIDE TONING BATH FOR ALBUMEN PRINTS.

ALTHOUGH a great number of very good toning baths are in use, I believe the formula I propose to communicate here, will be found of value, as it is, at least in my hands, one of the most certain, and gives very fine shades of a rich purple black, without reduction of the print. The pictures toned with this bath become even richer in the hypo bath, and do not approach a brown tone, like those toned with the acetate and other baths. This bath is similar to that proposed by Dr. Carey Lea, which is formed by a solution of fulminating gold in sulpho-cyanide of potassium; it has been used by me for many months with constant success. For preparing it, take

Sulpho-cyanide, double, of	
Gold and Ammonium, .	1 grain.
Chloride of Ammonium, 40 to 60	"
Water, . . . . .	1 or 2 ounces.

These proportions may be varied.

This bath is used immediately after preparing it, or later, as it is very constant. As soon as the washed (not fixed) prints come into the bath, they take a brown tone, which slowly, but without reducing the print, assumes a brilliant black. The whites remain quite pure.

The bath can be prepared in the following manner:

Take a given quantity of chloride of gold, and add drop by drop, as much of a strong and slightly warmed solution of sulpho-cyanide of ammonium, as is necessary to dissolve the brown precipitate which is formed at the beginning. Stir and warm *slightly*. It is better to leave a small quantity undissolved, which may be used at a subsequent preparation. Then decant the gold-yellow, clear portion, and add for each grain of chloride of gold used, from 60 to 90 grains of chloride of ammonium, and 2 or 3 ounces of water. Instead of the sulpho-cyanide of ammonium, which is very cheap here, the potassium salt may be used.

It should be remarked, that the prints, when in the toning bath, must, from time to time, be slightly brushed, in order to eliminate the precipitate of sulpho-cyanide of silver which is deposited upon their surface. This precipitate disappears completely in the hypo fixing bath.

If the double sulpho-cyanide of gold and ammonium is used, the preparation is very simple.

I have published the preparation and composition of this double salt, in No. 75 of "Photographic Archiv."

The chloride of ammonium acts favorably in some toning baths. I tried once the "Sel d'or," by Messrs. Fordos & Gélis, Paris, for toning albumen prints, but could never obtain black shadows without having

the whites changed into yellow. As soon as some chloride of ammonium was added to the same solution, it toned regularly. The half-tints become a little warmer in this bath than in the sulpho-cyanide, and the toned prints are somewhat changed in the hypo bath.

DR. P. E. LIESGANG.

ELBERFELD, Nov. 12, 1866.

## MISCELLANEOUS PHOTOGRAPHIC HINTS.

BY M. CAREY LEA.

*Cameras.*—There can be no doubt that, in many cases where photographers find themselves unable to work thoroughly to their own satisfaction, or to produce really first-rate work, the difficulty lies in unsuspected faults in the camera. I shall endeavor to show that certain faults may exist, which, though some careful observers may recognize them, will yet escape a good many, unless their attention is specially called to them.

Our cameras are usually made of wood, a material liable to very great objections, and I think it would be very possible to construct metallic ones, which would be better, in every way, even lighter in weight. But as wood is now the almost exclusive substance employed, I shall confine my remarks to it.

Most photographers, in purchasing a camera, satisfy themselves by a careful measurement that the sensitive plate will occupy the same position as the focussing screen, observe that the wood-work is neat and close, and rest content with that.

Now there is no more important requisite in a camera, than that the sensitive plate should be exactly perpendicular to the optic axis of the lens, otherwise, while one side of the plate is in true focus, the other will not be strictly so. To a cursory observation the whole may appear to be in tolerably good focus, but a careful examination with a glass will verify the difference.

There are two ways to ascertain if this fault exists. One is a careful observation with a microscope as to the equal correctness of the focus in all parts; another is to rack out the camera to its full extent, and then laying one

side of a square against the side, verify if the front of the camera makes an exact right angle with one side. As it is the business of the maker of the objective to make the flange perfectly true, that is, perfectly at right angles with the optic axis of the lens or lenses, this flange, when screwed tight to the camera front, brings the optic axis into right angles with the front. It is therefore evident that if the side makes a true right angle with the front, the side is parallel to the optic axis.

If any who read this, think such precautions superfluous, I can only say, that within my own experience, a camera made by a first-rate maker, as his best work, showed, when tried in this way, a deviation of near an eighth of an inch. Probably, this had not existed, or in a less degree, when the instrument was made, and I here especially wish to point out the necessity of repeating such measurements from time to time, perhaps twice a year, and not resting in the belief, that because the camera was once right, it must be always right.

Another fault, which easily comes with time, is a warping of the base on which the back slides. If the base warps so as to make the upper side slightly concave, the top of the plate is thrown forwards, and may approach a sixteenth of an inch, an eighth, or even more, towards the front. If the upper side becomes convex, the top will be thrown backwards, and farther from the front than the bottom.

It might be thought that the stout brass rack which is inserted into the sliding-bottom in many cameras, would prevent its warping, and render it perfectly rigid. I can say, from experience, that this is not the case; the rack will bend with the wood, so powerful is the force exerted by the latter.

Our American climate tries wood-work much more severely than many others. In midsummer, especially in August, and also even in September, our atmosphere becomes excessively dry, so much so that many salts known as deliquescent, will remain perfectly dry at such times, when exposed to the air. In winter, the air is also kept very dry by our modes of heating. Then in spring, we have much weather that is extremely damp, a warm penetrating dampness which will



sometimes even detach wall-paper from walls. Of course, in such an atmosphere, all wood-work swells very much, and is again shrunk up again by the subsequent dryness. Such mutations of condition are destructive to almost any wood-work.

The prevailing system of construction of cameras is different in America and England. In England, the focussing screen and dark slide usually slip into a groove. With us, dowels are fastened into the bottom of the camera, and fit into holes in the slides, which close up by a spring-catch at the top.

Of these two methods, the English is decidedly preferable. There is far greater certainty of bringing the sensitive film into an invariably exact correspondence with the focussing screen. The spring-catch may become weakened or bent by use, and gradually notch the slides less and less tight, and very possibly, as I have seen happen, come by degrees to act differently on the two slides, holding one up tighter than the other. A camera constructed on this system, demands continual watchfulness on the part of him who works with it.

Another fault lies in the pinion or cog-wheel not fitting tight up to the rack, but allowing a slight motion. If this fault exists, it is easy in changing the slides to slightly disturb the focus, even when every other danger has been carefully guarded against.

*Developing Vessels.*—Every photographer is familiar with the annoyance of dirty deposits which adhere to the sides of his developing vessels, and which tend to render fresh portions of developer muddy, and promote fogging.

It is one marked advantage of the collodion-developer, which I have brought forward, that it does not become muddy under such circumstances. But the following method, of expeditiously getting rid of this deposit, which I am in the habit of using, will, I think, be convenient to many.

In a suitable wide-mouthed bottle, I pour some cold saturated solution of bichromate of potash, to which I add sulphuric acid, in the proportion of about one to five or six. This bottle I keep always at hand, uncorked, on the table at which I develop. If my developing vessel receives a dirty deposit, I

simply fill it with this liquid, and pour it immediately out again; a second, or at most, two or three seconds, is sufficient to render the dirtiest developing vessel bright and clean; of course, the bichromate solution must be thoroughly rinsed out.

The convenience of this mode of operating can hardly be estimated by those who have not tried it, and no one who does, will, I think, deem the suggestion a trivial one.

There is also another convenience in having this strong solution thus at hand. It is in developing, that the fingers are most apt to get stained, and if one has this solution always by one to plunge the fingers into, when a stain first appears, it is removed instantly. And the little pauses which occur in the operations of developing, fixing, washing, &c., afford convenient moments for such finger-cleaning, without loss of useful time.

*Sensitizing Plates.*—There is a great deal in the dipping of plates into the negative bath in such a way as to avoid unnecessary disturbing of any deposit which may have formed, and which, however slight and imperceptible it may be, it is an object to leave undisturbed. In this, much will depend upon the manipulative skill of the operator, but the following system might be advantageously adopted by those who use but one size of plates, or keep a separate bath for each size:

Have your bath considerably deeper than your plate requires, and then attach a little cross-piece of wood, glass, or whalebone to your dipper, and so arranged that it will catch across the top of the bath, and prevent the plate from descending more than an inch or two below the surface. Thus, the lower portion of the bath need never be much disturbed, especially if all the movements be performed gently and quietly, and the tendency to pinholes, comets, and other disagreeable things may be materially checked.

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### PHOTOGRAPHIC MOSAICS.

AGREEABLY to the promise of the publishers, this wonderful little book was ready by December 15th promptly. We call it *wonderful*, because *one hundred and forty-four*

pages of such matter as it contains for fifty cents is wonderful. It appears in a new and handsome cover beautifully ornamented; is on heavier paper than last year; and is full of valuable and useful photographic reading. Part of the edition has been neatly bound in cloth, in order that it may be more carefully preserved by those who desire so to do. It is without a parallel in cheapness, being the lowest in price of any work on photography published at home or abroad. Nearly one thousand copies are already sold and accomplishing their mission. It contains matter, principally of value to the working photographer, selected from the Journals of Photography at home and abroad; original papers written specially for its pages; valuable hints which almost every one knows, but which are universally forgotten; instructions for photographing on almost every substance capable of being so used, &c. &c. It should be in every photographer's hands. The following paper, contributed specially to its pages by the author, will give an idea of the character and contents of *Photo. Mosaics* for 1867:

**"SWAN'S CARBON PROCESS:  
Its Value and Mode of Working.**

BY G. WHARTON SIMPSON.

As the method of printing in carbon or other pigments, devised by Mr. Swan, now comes before the public in a practical form, and challenges competition with silver printing, on the ground of equal beauty, simplicity, practicability, and economy, and of greater permanency, it may be interesting first briefly to examine its claims to preference, and then to offer a plain statement of the mode of working.

The first consideration is pictorial beauty. Whatever claims a process might possess on the score of simplicity, economy, or permanency, if its results were inferior in beauty to those already obtained, it would receive but a cold welcome from photographers and the public, and its application would be confined to matters in which the mere record of a fact, and not the embodiment of beauty was necessary. No jot of pictorial excellence must be wanting in a process which aspires to supersede silver printing in its present perfect state. Fortunately in the

new carbon process no element of beauty is lacking. Every gradation in the finest negative is rendered with perfect delicacy; great brilliancy is secured without harshness; every tint of monochrome possible to the painter may be obtained in these prints; by varying the proportion of color added to the gelatine, vigorous prints may be obtained from weak negatives, and soft prints from vigorous negatives; and the surface is free from the gloss which is so offensive to the taste of many.

Simplicity, practicability, and economy are qualities each greatly dependent upon each other, and their existence in the process will be best shown in the practical details which follow. But I may explain that by simplicity and practicability, I mean that the object of each operation in the printing is perfectly clear and well understood; that each step in the process follows the others in regular and unvarying sequence; and that all the manipulations are easily performed. There is no complexity requiring unusual intelligence to understand, and there are no uncertain conditions in which success is left to chance or guesswork. On the score of economy, whilst the manipulations are more numerous than those of silver printing, and the time consumed probably a little longer, yet as the materials are much less costly and the sensitiveness so much greater, that three carbon pictures can be printed in the time required for one silver print, it is probable that on the score of economy, the balance will be found on the side of carbon printing.

It is on the score of permanency, however, that the new process possesses the strongest claims. It is unnecessary to discuss the amount of permanency belonging to silver prints. Under the most favorable circumstances their stability is known to be doubtful. What then is the basis of the claim to permanency made for the carbon print? I will state the ground for such claim.

The image is formed of carbon, or for variety of tone of some other pigment known to be permanent. The vehicle in which the coloring matter is held, is gelatine rendered insoluble—converted in fact, into a substance resembling leather—by combination with



the permanent sesquioxide of chromium. The adhesion of the image to the paper on which it rests, is secured by means of a thin layer of gelatine, rendered insoluble by the action of the sulphite of alumina. The whole compound layer of gelatine, color, and chromium, scarcely exceeds in thickness the amount of gelatine on a sheet of well-sized writing paper. The print may be fairly assumed to possess as secure a tenure of permanency, as an Indian-ink drawing, to which experience enables us to assign a stability of at least a few centuries.

If I have fairly stated the advantages of this process, and I do not think I have overstated them, my conclusions being drawn from extended experiment, and very careful examination of the subject, carbon printing, as proposed by Mr. Swan, has claims upon the attention of photographers not possessed by any other printing process in existence. I will now, as briefly and as clearly as I can, describe the operation from beginning to end.

*The Preparation of the Tissue.*—As in the practical application of carbon printing, it is probable that the photographer will generally employ a tissue prepared for him, by Mr. Swan or his agents, by whom it is prepared by machinery, in a more perfect manner than it can be done in small quantities, it is not important to enter into this question in detail. I may state, generally, for the advantage of those who may wish to experiment, that one ounce of gelatine is dissolved in four ounces of water, in the usual way and strained; then one-half an ounce of white sugar is added. Next the proper color must be mixed with it; Indian-ink or lampblack with a little crimson lake will answer well. The right proportion is best ascertained by experiment, but about eight grains of dry pigment to an ounce of dry gelatine is a good proportion. The mixture may be applied warm to paper, either by a brush, or by floating, or by pouring on a plate of glass first treated with ox-gall, and when set applying moist paper to it, and pressing to secure contact and adhesion; and then when dry removing from the glass. Or it may be applied to a dry film of collodion (on a glass), which, when all is dry, will serve instead of paper. It may be rendered

sensitive at the time of its preparation; but the rule is to render it sensitive when required for use, by immersion for a minute or two in a saturated solution of bichromate of potash.

*To Sensitize the Tissue.*—I will now suppose that the photographer has purchased his tissue ready prepared as he buys his albumenized paper. When required for use immerse it (in the dark of course), in a saturated solution of bichromate of potash; this will consist of one ounce of the salt in ten ounces of water. The tissue may remain from one to three minutes, according to temperature. About three minutes at 50° Fahrenheit, about two minutes at 60°, or about one minute at 70°; the solution should not be at a higher temperature, as there would be risk of dissolving the gelatine. Hang up to dry, in a place which is dry and airy, and not warmer than 60° or 70°. If it be sensitized at night, it should be dry for use in the morning.

*Exposing the Tissue.*—When the tissue is dry rub over its surface some powdered steatite (French chalk), with a flat camel's hair brush. This will prevent the chance of the tissue adhering to the negative, and will by its stronger adhesion in the place, show if there is a spot imperfectly dried. Rub over the surface of the negative in the same way. Now place the black surface of the tissue in contact with the negative, and place in the pressure frame in the usual way. It is not necessary to use hinged pressure frames, as the progress of printing cannot be examined. In Mr. Swan's establishment the process of printing is estimated by means of an achrometer, which is found to answer perfectly. In my own experiments I have guessed the exposure as I would that of a negative, by observing the strength of light, the density of the negative, &c., and remembering that the carbon tissue, as a rule, takes one-third of the exposure of silver albumenized paper. In this way I have rarely failed from under-exposure, or over-exposure.

*Mounting for Development.*—As it is necessary in order to secure half tone, to wash away the unaltered material at the side opposite to that which was in contact with the negative, the tissue must be mounted on

another paper, with a material which will not dissolve in warm water. A ten-grain solution of India-rubber in benzole is prepared and poured in a dish. The prepared side of the tissue is floated, or rather drawn over the surface, to get an even coating. A sheet of paper is treated in the same way.

When both surfaces are dry, which will be in a few minutes, they are pressed in contact, and then submitted to the pressure of a rolling press, with a piece of felt blanket in contact. By this means it will be seen the prepared gelatine, &c., is mounted between two sheets of paper.

*Developing the Print.*—The term development is here applied to an operation different from that to which it usually belongs. In this process it simply indicates the removal of the unaltered material, and thus revealing the picture. The mounted tissue is now placed in tepid water, temperature not exceeding 100°. In about a quarter of an hour the paper on which the gelatine, &c., was originally coated, will become detached by the softening and solution of the gelatine in contact with it. This paper is removed, and the temperature of the water is increased to about 120° or 130°. All the unaltered gelatine becomes rapidly dissolved, and the unaltered bichromate also. In from five minutes to a quarter of an hour, all this being in proper condition, the picture is fully out. If it comes out too rapidly and show signs of under-exposure, quickly transfer it to cold or tepid water, which will arrest the too rapid solution, and prevent the picture becoming too pale. If it show signs of over-exposure, the prolonged action of water of a very high temperature will reduce its depth. After the picture is fully developed it should lie in cold water for half an hour, to remove all traces of soluble chromic salt. It is then hung up to dry. Care should be taken not to abrade the surface whilst developing, for although the image is insoluble, it is sufficiently soft to be injured by a hard rub. Sometimes gentle rubbing, with a broad soft camel's-hair brush, may be employed, to assist in removing the soluble material, but as a rule it is not necessary. If the tissue shows traces of general insolubility, it has probably been dried too slowly,

or too long kept, after sensitizing, in a damp place."

## New Experiments on the Sensitiveness of Bromide and Iodide of Silver.

BY DR. H. VOGEL.

I SHALL endeavor to show, in this paper, how much the sensitiveness of bromide and iodide of silver varies in the presence of nitrate of silver, and how even the pure iodide of silver, which is generally considered as being more sensitive than pure bromide of silver, is found, under certain conditions, to be less sensitive. It is a notorious fact, that bromide of silver, in the dry process, often proves more sensitive than iodide of silver; but, in that process, no nitrate of silver, but some organic bodies are present, hence the circumstances are quite different from those of my experiments.

In order to find the relative sensitiveness of both of these salts, I prepared a simple iodized and a simple bromized collodion, and to test the sensitiveness of chloride of silver also, I prepared a chlorized collodion.

### 1. IODIZED COLLODION.

Iodide of Cadmium,	. 1 gramme.
Alcohol, . . . .	. 30 "
Plain Collodion,	. 90 "

### 2. BROMIZED COLLODION.

Bromide of Cadmium,	. 1 gramme.
Other ingredients same as above.	

### 3. CHLORIZED COLLODION.

Chloride of Cadmium,	. $\frac{1}{4}$ gramme.
Other ingredients same as above.	

The quantities of the salts here taken, agree nearly with their atomic weights. A plaster bust, veiled with black drapery, was taken with each of these three collodions. Two baths were employed. The first bath contained a little iodide of silver, and was used in the experiments with the iodized collodion. The second bath, with which the experiments with bromized and chlorized collodion were made, contained no iodide of silver.



*Apparatus.* — Dallmeyer's Stereoscopic Camera.

*Exposure.* — 1 or 2 minutes.

*Developer.* — Sulphate of iron, and acetic acid.

The results were:

The chlorized collodion gave no trace of an image.

The bromized collodion gave a distinct, but weak and very soft image of the white plaster; the dark shades were invisible, and no trace of the black drapery.

The iodized collodion gave an intense image, both of the bust and the drapery, but this was hard, and the outlines not clear.

By these experiments, the greater sensitiveness of pure iodide of silver, as compared with pure bromide of silver, is proven.

The condition of the bath is, however, to be taken into consideration, for the result would be different, if, instead of a plain bath in connection with the bromized collodion, an ordinary negative bath containing iodide of silver, were taken (*vide* my letter to *The Photographer*, page 301).

I subsequently examined the effect of a pyro-developer on bromized and iodized collodion.

Three kinds of collodion were employed, which were sensitized twice as much as those mentioned above, and the result was the same as with the iron developer; the plate, however, appeared much more dense.

For the sake of making the experiments complete, I employed a mixed collodion, and compared the results:

Bromide of Cadmium, . . .	1 part.
Iodide of Cadmium, . . .	1 "
Alcohol, . . .	30 "
Plain Collodion, . . .	90 "

The image was less intense, but softer and more harmonious with details in the drapery.

In order to obviate the influences of the silver bath, which varies so much in its composition, and thereby modifies the result, I employed in the following experiments, a silvered collodion similar to the one proposed by Mr. Sayce.

The results were strange and unlooked for.

Three collodions were prepared:

*A. Collodion with Iodide of Silver.*

Iodide of Cadmium, . . .	1 gramme.
By measure of Alcohol, . . .	15 "
" " Plain Collod., 45 "	"
Solution of Nitrate of Silver, 4 "	"
(1 part Silver and 1 part water).	

*B. Collodion with Bromide of Silver.*

Bromide of Cadmium, . . .	1 gramme.
Other ingredients same as in A.	

*C. Collodion with Bromo-Iodide of Silver.*

Iodide of Cadmium, . . .	$\frac{1}{2}$ gramme.
Bromide of Cadmium, . . .	$\frac{1}{2}$ "
Otherwise, as in A.	

The collodions were prepared in the following manner:

The iodized salts were dissolved by themselves in the alcohol, and filtered. One part of the filtrate was added to three parts of plain collodion, and the mixture put aside for 48 hours; afterwards, 60 grammes, by measure, were poured into a bottle which contained exactly 4 grammes of solution of silver salt (1 part silver and 1 part water): After shaking for 10 minutes, the solution rested one hour, and was then used.

Sayce used, in his experiments, a silvered collodion, which was washed *before exposure*, and then liberated from free nitrate of silver. But my intention was to examine the effect of the sensitive salts in the presence of free nitrate of silver. For this purpose, the plates were exposed, without being washed, immediately after being coated with the silvered collodion. The exposed film containing alcohol, does not allow the aqueous iron developer to enter it, and therefore I employed an alcoholic pyrogallic developer, composed of:

Pyrogallic Acid, . . .	2 parts.
Glacial Acetic Acid, . . .	2 "
Alcohol of 80 per cent., . . .	100 "

Without alcohol, this developer is composed like those mentioned above. This developer was poured on the plates immediately after exposure; it flows very good over the plate.

Before proceeding further, I will mention that the very appearance of the plates prepared with bromide and iodide of silver, was remarkable before exposure. While, in ordinary work with the wet process, the film of sensitized iodized collodion appears much more thick and creamlike than the film of sensitized bromized collodion, it is quite the contrary if the silvered collodion is employed. The film with *bromide* of silver was the thickest and most creamlike; the one with bromo-iodide of silver was clearer, and the one with pure iodide of silver the clearest. The latter had a strange yellowish-gray appearance, which surprised me so much, that I supposed I had made a mistake in the preparation of the collodion, and therefore prepared all collodions fresh.

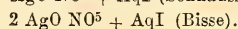
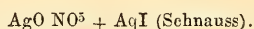
Still more remarkable, however, was the behavior of the plates after exposure. The object employed was a plaster bust, as in the previous experiments, veiled with black drapery; exposure with equally good light one minute with Dallmeyer's portrait lens.

The film with the *bromide* of silver gave a delicate soft image of the plaster bust, quite as delicate as in the ordinary wet process (*vide* above); no marks of the black drapery.

The film with *bromo-iodide* of silver gave a similar, but weaker image. The film with iodide of silver gave scarce a *trace* of an image, only the lightest parts of the plaster bust appearing in weakly reflected light.

These experiments were repeated several times with always the same results. We remark, therefore, that the scale of sensitiveness is directly inverted. *Bromide of silver in presence of a small quantity of nitrate of silver is much more sensitive than iodide of silver.\** If both of them are combined, the effect of the compound is an intermediate one. Strange as these facts may appear, this explanation is, nevertheless, easier than may be supposed at first sight. The abnormal appearance of the film with iodide of silver, indicates that there is another body present than in the ordinary process with the aqueous silver bath. Iodide of silver,

as is well known, enters into two crystallizable combinations with nitrate of silver:



These combinations are decomposed by water; iodide of silver is liberated, and nitrate of silver dissolved. The iodized silver collodion above mentioned, containing more than one equivalent of free nitrate of silver, the combination  $\text{AgO NO}^5 = \text{AqI}$ , may easily be formed, and that this combination is indeed in the collodion film, is proved not only by its abnormal appearance, but also by the effect of water on it, which decomposes it by liberating iodide of silver. By immersing the film in water, its appearance immediately changed, becoming greenish-yellow and more dense.

The film with bromide of silver does not change its appearance at all in water; hence, we have here not a film of *iodide of silver*, but of nitro-iodide of silver; and that this is less sensitive than free iodide of silver, cannot appear strange, since the chemical behavior of the parts of a combination does not allow us to draw conclusions as to the chemical behavior of the combination. As a characteristic instance, we may mention the strange behavior of chloride of silver in the presence of chloride of hydrargyrum. Chloride of mercury is sensitive; chloride of silver is sensitive also; a mixture of the two is unaffected by light (Gay-Lussac).

My experiments on this subject are not yet finished; further results will be published in due time.

*On the Relative Sensitiveness of Iodized and Bromized Collodion, under different Intensity of Light.*

I have mentioned above, that pure iodized collodion is more sensitive to strong light, while bromized collodion is more sensitive to weak light; for this reason the former gave a thick hard image of a plaster bust with black drapery, when the portrait lens was employed, but wanting details in the darker parts, while the other gave a thinner image of the plaster, but much more detail in the drapery. I believed, formerly, that

\* Under the same circumstances.



pure iodized collodion was to be preferred for copying, so as to insure thick negatives with clear lines. Recent experiments have shown, however, that this conclusion cannot be admitted in all cases. For the sake of experiment, I took a copy of a drawing with Dallmeyer's triplet (smallest stop), on *pure iodized and iodo-bromized collodion*, and the result was, that the image on bromo-iodized collodion under the same circumstances, was much more intense than on pure iodized collodion.

This result seems to be in contradiction with those observed above, but this contradiction is easily removed, if we take into account the intensity of light.

The portrait lens gave a very intense image of the bust; the stopped triplet lens, on the contrary, a very weak one of the white paper of the drawing, evidently weaker than the image of the black cloth, taken by the portrait lens.

Though, in taking a copy with an objective with a small stop, we have a well-lighted object, we only obtain a weak image, and therefore the bromo-iodized collodion will give an image more intense than the iodized collodion.

This circumstance indicates how much the intensity of the light of a lens is to be taken into account, when judging of the effect of a sensitive preparation. Some months ago, I proved that a small quantity of baryta, added to the silvering bath, increases remarkably the intensity of the plates in the light parts. The object was a plaster bust, the apparatus and an objective for portrait-ure. The plates appeared a little hard.

Induced by this, Mr. Korn tried, for reproductions, a bath containing baryta, in the hope of getting thereby a thick negative; he experienced, however, quite the reverse. The image, with a small stopped triple lens, became less intense than with the ordinary bath, and the reason was, that I operated with an actinic objective, while he employed a very weak one. It would be of great importance to be in possession of an apparatus fit for exactly fixing the actinism of a camera image; only by means of such a one we would be enabled to make numerical calculation on the sensitiveness of a preparation,

by which conclusions might be made with certainty.

DR. H. VOGEL.

## GLASS POSITIVES.

BY J. C. BROWNE.

To make these beautiful pictures, two methods may be used, respectively known as "wet" and "dry," each having its admirers. Some prefer the first, others the second. In this article I propose to devote more space to the former.

All photographers are supposed to know what dry plates are (I speak more particularly in regard to landscape work), and how often they have played false, even under the most favorable circumstances. At least such has been my experience.

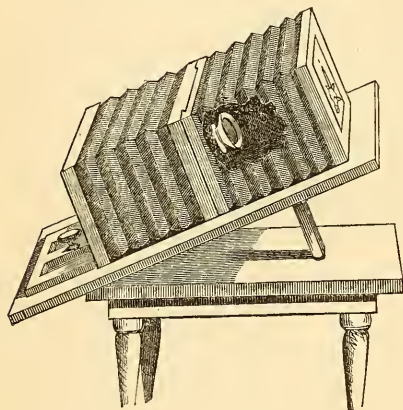
Wishing to make some glass pictures for the magic lantern, some time ago, much thought was given, and many experiments tried, to find out which process was the best, but after previous experience with dry plates, I did not feel disposed to again rush into the lion's mouth without due consideration. Almost all of the many plans had been tried. Some being very successful, but the ghost of failure or uncertainty settled over most of them. I must confess that I had enough of that kind of work, and turned with renewed feelings of pleasure to my old friend the "wet."

Plates were made with albumen; "Fothergill's" collodion, preserved with tannin; malt; albumen, &c.

After being prepared by any of the above processes, they were exposed to diffused daylight (or gaslight will answer the same purpose), in a printing frame, under the negative, precisely as photo-minatures or opalotypes are produced, being a printing operation on glass instead of paper.

One great disadvantage in dry printing is, that the operator is always limited to one size—the exact dimensions of the negative. By the wet plan the positive can be made any size desired, either larger or smaller than the negative. To make wet positives it is necessary to have two cameras placed front to front, or one regular camera box, with an extension attached to the front, so

that it can be adjusted to the size wanted. My own is arranged in the following manner: A camera box  $8 \times 10$ , having a movable front, is used for exposing the plate. I shall call it No. 1. On the edge of the front, extending up and down, on both sides, is screwed a piece of wood, making a groove into which the extension, or camera box No. 2 slips, having a flange on its edges corresponding to the grooves in No. 1. This makes a perfect light-tight joint, and does not interfere with the regular camera being used for any other purpose.



Box No. 2, is made with a large opening in the front, or part joining No. 1. The upper end, instead of having a grooved glass, has an opening arranged to fit a  $6\frac{1}{2} \times 8\frac{1}{2}$  negative, with a dark slide immediately behind. This box has a bellows and rack adjustment similar to any camera; in size it must be made to draw out at least 30 inches. To put the boxes in working order, take off the movable joint of No. 1, on which the lens is fastened; then push them together joint to joint; pull out the dark slide of No. 2, and adjust the front of No. 1 (containing the lens), in its position. Then place the negative in the frame of No. 2, inclining the boxes so that the line of vision will strike the sky or any white object.

I use the sky, fastening the boxes on a copying board 7 feet long, raising the upper end so that the negative is clear of the line of houses or trees, which can be readily done by looking through the ground glass.

If possible use a north exposure, and do not let the sun strike the negative. The lens in No. 1 must always be uncovered, using the slide behind the negative as a covering.

To make a picture, focus very carefully with the ground glass of No. 1, using the rack work of each box to obtain the proper size; then close the dark slide of No. 2, which covers the lens; prepare the plate similar to the negative process, using a collodion giving little intensity but much detail; put the plate in the holder, which is then placed in the position occupied by the ground glass; draw out the slide of the holder, also the negative slide, expose from 10 to 30 seconds, and push in both slides, commencing with No. 2. Develop very carefully with a weak iron developer, as if an ambrotype was desired, holding the plate over a small light, judging of the length of development by transmitted light. Care must be given not to force the positives too much with iron. Fix with either hypo or cyanide.

The negative bath must be slightly acid and perfectly free from pin-holes. Almost any kind of a lens will answer the purpose.

I have tried many experiments in toning the positive, but do not find that any advantage is gained over the ordinary iron development, but any weak gold toning bath will do for the purpose.

The greatest care is required in making a negative of the proper kind. To get the best results use only weak negatives. One that will make good paper prints will be found too strong. Detail is of great importance, second only to sharpness.

During the last year I have prepared a large number of positives for the magic lantern, or stereopticon, by the use of the above described mechanical arrangement, using the wet process entirely, with very good success.

The following method of printing stereoscopic transparencies from uncut negatives, by means of a new printing-frame, invented by Mr. C. D. Smith, will also be found interesting and useful.—ED. P. P.

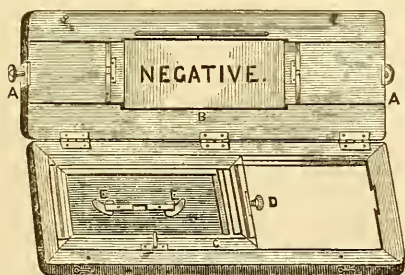
"This frame, as shown in the diagram, consists of two flat pieces of wood having openings in the centre. On one side the open-



ing is of the size of the negative, on the front of which there is a sliding shutter or mask, with an opening of the size of half the stereoscopic plate, and which gives a clear printed margin to the picture. At each end of this half of the frame is provided a turn-screw, communicating with movable bars of hard wood, which are at each end of the groove made to receive the negative, and by which the negative is secured by clamping. In the other half of the frame there is a box or carrier to hold the sensitive plate, and which is made to slide from end to end. By this contrivance the right of the negative is opposite the left of the sensitive plate, and by a movement in the contrary direction the negative is exposed *vice versâ*. This half of the frame is provided with a spring-catch, which fastens the box at its proper place. This box is provided with a brass pin, which communicates with a groove on the opposite half, and which moves the sliding shutter or mask along with it, covering up the half of the negative first exposed. At the back of the carrier two slip springs are placed, which, by releasing with a turn-screw, force the sensitive plate in direct contact with the negative.

"Let us briefly recapitulate, and avail ourselves of the diagram.

"The frame being opened, first secure the negative by clamping with the two turn-screws A A, taking care that the centre of the negative comes opposite the line B; then



secure the sensitive plate in the sliding box or carrier, C, by means of the small turn-screw, D. The sliding box is then drawn to one end, and, by means of a spring, is held securely in position. The frame is then closed for printing the first half from the negative. At the back of the carrier, C, there are two slip studs which communicate

with the springs E E, under the sensitive plate. By pushing forward the studs the springs will press upon the plate; then turn the screw D, and the plate, being released, will be forced in contact with the negative.

"Having exposed the first half the requisite time, push back the studs, and the plate will fall into the box-carrier; secure the plate by clamping with screw D; then slide the frame to the other end, release springs and plate as before.

"The frame is also adapted for printing paper and opalotype pictures."—*Photo. News*.

## THE CLOUDS.

BY REV. H. J. MORTON, D.D.

INSTANTANEOUS photography has enabled the artist to give us what previous modes of exposure quite obliterated, viz.: the cloud-masses. After the landscape has been reflected for several seconds on the sensitive plate, it is observed that the sky, though full of clouds, loses all its beautiful shapes, becoming a light and uniform surface. No longer do the grand masses of the "cumuli" tower up like mountains or constellated palaces, no longer do the "cirri" or "curl-clouds" fill heaven with endless forms of fantastic beauty. One flat unbroken tint covers all, and leads the spectator to suppose that when the picture was taken, a perfectly cloudless sky compassed the dark masses of wood and water, of hill and plain, prospects which the prints had recorded with infinite fidelity. But the "instantaneous" process remedies this defect, and gives us all that the sky holds in the way of clouds, as well as all that the earth presents in the shape of solid substantial landscape.

This is a great gain. The cloud-masses are infinite in variety, and inexpressible in beauty. We have watched for hours, when the whole heaven has been covered with slowly moving cloud-flocks, feeding, as it were, along the slopes of the sky, and tried if we could find any two fragments which were like each other, but to no purpose. There might be a general similarity of form,

but there was absolutely no repetition ; each cloudlet had its own peculiar sweep and curve, and characteristic outline, and amid a general resemblance of shape, there was a perfectly sustained individuality of aspect, quite as much, nay, even more marked than in human faces and forms, where the difficulty of distinguishing individuals is frequently insurmountable to one not familiar with the person to be identified, and hence, not able to help his judgment by peculiarities of voice and gesture, and other distinguishing characteristics.

But these cloud-masses which the instantaneous process enables us to catch and retain, and reproduce, are as exquisite in *beauty* as they are various in *form*. Nothing, it seems to us, can equal the wonderful grace and glory of the cumuli, or heaped-up masses as they gather sometimes in the mid-day sky, but more frequently in the afternoon or earlier portions of the evening. We do not speak of their wonderful whiteness, which makes almost any object, however fine and thoroughly bleached, look dark by contrast. We do not now refer to their gorgeous tinting, when the sinking sun has lit them up with rainbow hues, and they blaze as with burnished gold, or blush with the most exquisite tints of the rose or the ruby, but we speak simply of the indescribable beauty of the great piles which lie poised in the air in virgin purity of perfect whiteness. Great valleys go winding up amid their rounded rock-like masses. Great rivers seem to wander among the roots of them. Far-reaching hills and wide lakes, apparently lie in the laps of the mountains, and we almost look to see in them the reflections of overhanging hills, or the glittering of some white sails, swelling to the air which must be sweeping over the surface, and wafting forward the fairy boats which should navigate such waters.

To perpetuate such forms of beauty, is a great triumph, and instantaneous photography is destined to accomplish it still more perfectly.

No one has probably done as much to call attention to the subject of clouds, as Mr. Ruskin, in the early volumes of his "Modern Painters." Hundreds, and thousands, we may well say, who never before

looked at the sky with any appreciation of its amazing riches in regard to cloud masses, have lifted up their eyes to the heavens, and wondered, since they read his graphic descriptions and ingenious speculations, have watched the slowly forming mists and slowly changing shapes of the wandering cirrus and majestically marching storm-vapors, and have felt that a book hitherto sealed, has been opened to their eyes. We know of nothing more exquisitely appropriate than some of his expressions when he would describe the changing aspect of the sky, as it darkens into tempests or opens up before the eye filled with drifting scud or graceful cirri. Yet, strange to say, after giving everybody else light and satisfaction on this subject, Mr. Ruskin, in his fifth volume of "Modern Painters," seems to fall into sudden doubts, and asks, in most inimitably beautiful language, a variety of questions with regard to the nature and movements of clouds, which he professes himself wholly unable to answer. We beg the reader of this article to turn to the chapter on "Cloud Balancing," Part 7, vol. V, page 109 of the American edition. He then adds: "I do not believe we know what makes clouds float. Clouds are water in some fine form or other, but water is heavier than air, and the finest form you can give a heavy thing will not make it float in a light thing—on it, yes, as the boat, but, *in* it, no." And then, after much of the same sort, he adds, as a finale: "That the cause of the clouds' buoyancy, is the thing he wants to explain or have explained, and cannot do it nor get it done." It may be presumptuous for one making no claim to scientific proficiency, to attempt the solution of a difficulty which seems so serious to one so skilful, but we will venture on an explanation. But first, we must enter a protest against our author's first postulate, viz.: "that heavy things will not float *in* light things."

Attending, lately, the lectures delivered at the Franklin Institute, we saw a precipitate of silver, formed in a diffused condition, exhibited on the screen by means of the immense camera of the operator. To our surprise and delight, it imitated accurately and beautifully all the varieties of cloud-motion and cloud-shape. It rolled up



into the grandest forms of "cumuli," or floated off into the graceful and curious fragments of the cirri, deepened into the dark uniformity of the "nimbus," and presented the spectator with all the phenomena of storms and clearing firmament. Now chloride of silver, we were told, and indeed knew, was heavier than water, and yet we saw it doing just the thing which our author says heavy things cannot do, *i. e.*, float in a lighter medium.

Again, we read that the water supply of the city of Marseilles, is charged with a white mud which comes down with one of the mountain streams. Every effort has been made to clear the water from this heavy discoloring mass, but to no purpose. There it is, after weeks and weeks of quiet rest, when one might suppose that it would have been precipitated. Nothing but an elaborate process of filtration will separate it from the water, which is specifically lighter than itself. And now, as we lift our eyes from the paper on which we are writing, and glance at the sunbeams which are pouring into the chamber, we see a further disproof of the author's doctrine, in the countless motes moving up and down to the right hand, and to the left, horizontally and perpendicularly, and at every conceivable angle of inclination. Heavier things do float in lighter mediums in many instances, and the laws which regulate their position are complex but well known. But we will not enter on them here, for we are not called upon to explain their action in these several cases in order to account for the buoyancy of cloud-masses in the sky. Simpler laws will suffice for our purpose.

Let any one walk out of the sunshine on a hot summer day, and pass into the shadow of one of those glorious cloud-masses whose equilibrium so puzzles the eloquent author of "Modern Painters;" he will experience an immediate and great decrease of temperature, and feel refreshed as he draws in a long breath of invigorating air. But what intercepts the heat? The cloud above him, on whose "fiery flanks" the beating of the high sun falls with such exceeding fervor. And what is the effect of this? Why to heat and expand the air in the cloud, and so cause the cloud either to rise slowly, it may

be imperceptibly, but still to rise or else to resist the attraction of gravitation drawing it towards the earth and hang "balanced" in the sky.

Again, this same blazing sun furnace, by the known laws of atmospheric action, causes a current of air to rush up towards the cooler portions of the sky, and this current, as it rises, lifts up the cloud-masses just as the ascending blast from a furnace-fire lifts the clouds of smoke which that fire has generated, and rolls them up in dense masses towards the heavens.

We think these simple and well-known laws explain all, or nearly all the phenomena of cloud formation and cloud motion.

The "balancing of the clouds," then, ceases to be a mystery. Those beautiful and often awful shapes, form and change and march onward, or hang motionless, or fall in showers, according to laws which we can apply to other substances, and by means of which, we can produce effects which are identical.

It remains for photography to catch the changing aspects of the sky, and hand over to us the beautiful drapery of the heavens.

## PRESERVING PRINTS FROM FADING.

BY G. WHARTON SIMPSON.

AMONGST the various methods proposed for the prevention of fading of silver prints, too little attention has been given, we fear, to preservative measures. A perfectly fixed and perfectly washed print—one which has received the most conscientious care from the photographer—may be submitted to such conditions after it leaves his care as will insure its speedy destruction; and the traces of fading, little or great, will generally be accredited to the photographer, however innocent he may, in many cases, be in reference to the decadence. Even in the matter of the mounting-board the photographer is never safe. Repeated as have been the cautions on this subject, as to the injurious effects of hyposulphite of soda in the board, respectable firms still at times issue boards, apparently of excellent quality, which on testing, are found little short of saturated with hyposulphite, present, in

fact, in such large proportions that we are utterly unable to account for it on any reasonable theory. It is, we know, used to remove the chlorine which is used as a bleaching agent during the manufacture of the paper; but how it can be used in such excess, and left in the paper in such proportion that an intense yellow-brown stain is produced in a moment by contact with nitrate of silver, as in the case of some cards we recently examined, we cannot understand. It suggests, however, the importance of testing each fresh stock of mounting-boards obtained by the photographer. This is easily done by digesting a few pieces of the card in warm water for a short time, and then adding a drop of a solution of nitrate of silver, the appearance of a brown turbidity indicating the presence of the hypo with sufficient accuracy for such a purpose.

The practice of some careful photographers, of waxing their prints before mounting, would serve as a considerable protection from injurious substances in the mounting-board, as well as from atmospheric injury afterwards. Mr. Thurston Thompson once informed us that he waxed every print of his own before mounting, to secure the additional transparency and delicacy conferred, as well as to preserve from moisture, &c. Waxing, or treating with encaustic paste, after mounting, doubtless also exercises a preservative effect.

We have recently had our attention called to the preservative action of varnishes on silver prints. A correspondent, Mr. Honeywood, of Horsham, sends us a plain paper print produced six years ago, which only received half-an-hour's washing; yet it is in perfect condition, with fine blacks and pure whites. Its preservation is due to immersion in a dilute solution of shellac in spirits of wine, the amount of resin left in the pores of the paper being sufficient, apparently, to exercise a preservative action without degrading the purity of the whites or giving a varnished appearance. About the same time that we received this print, we were favored with a call by Mr. Nash, a gentleman engaged in the manufacture of varnish. He showed us a print which a year or two ago had been treated on one-

half with a very pure varnish, whilst the other half was left untouched. The print was then placed in circumstances rapidly conducing to fading; the half which was left unprotected gradually assumed the offensive yellow tint so well known and little liked, whilst the varnished half retained all its pristine purity. The varnish, a sample of which he left with us for trial and future report, was, he informed us, simply a spirit shellac varnish, but it had been subjected to some decolorizing process after making, which gave it great purity and freedom from the usual brown tint.

We may here name a point of considerable importance to which Mr. Nash referred, and which had not before come under our attention. In stating his reasons for not using the ordinary white or bleached lac for such a varnish, he remarked that such a varnish, containing chlorine, was unsuitable for contact with silver prints. The bleaching of the lac is effected by means of chlorine, and he had found that on adding a drop of a solution of nitrate of silver to a varnish of white lac, a precipitate of chloride of silver was thrown down. If this be the case, varnishes made with white lac are undesirable for all photographic purposes.

One of the objections to the use of varnish to a paper photograph, consists in the undesirability of increasing the gloss on the surface. In using the varnish prepared by Mr. Nash, to an albumenized print, very little change in appearance is produced; but where this objection exists, it may be met in another way. A varnish made by dissolving shellac in a boiling solution of borax, or by adding a saturated solution of borax to an alcoholic solution of shellac, will preserve the print from the action of moisture without giving it a glazed surface. The "sizing preparation," manufactured by Mr. Newman, will give a comparatively waterproof surface without communicating any glaze, or causing loss of transparency in the shadows, or of purity in the whites. It is possible that if research were made in this direction, other agents might be found; but as we said at the outset, whilst much attention has been given to remove the inherent causes of fading, too little attention has been given to the preservation of the prints



from the outward action of agency calculated to deteriorate or destroy them.—*News.*

Mr. Simpson has kindly sent us one of the specimens spoken of in his paper. It is very badly faded indeed, and is continuing to fade. On applying some drops of nitrate of silver solution to the back of the mount, light brown stains will immediately appear, proving, conclusively, the presence of hypo. Photographers will find that the more common the quality of their boards, the more certain is hypo to be found in them. If they will use bristol or linen boards, they will not find this trouble, and by getting several samples they can themselves test them very easily. [Ed. P. P.]

### A VOICE FROM THE WEST.

"WATCHMAN, what of the night?" What is to be the future of the picture business, or is it to have a future? It is in a bad way now. All over the country the same story is heard. What does it mean? Your Journal is a kind of family circle, where we can talk over our secrets. And just now the most important subject to be discussed is, how shall we secure the chemical effects produced by "bread and butter?" I should like to hear from the acute analytical minds of the profession on this subject. What course shall be pursued to make the business a paying one again? Of course, I have a theory, and might as well give it now.

I think it cannot be denied that the great mass of the people in this country have had their pictures taken. There are a certain number born every day, who will want pictures, and a certain number die every day, and of some of these, duplicates and large pictures will be made. But the people who made the picture business what it has been, have had all or nearly all the pictures taken they ever will. Some affect to doubt this, and believe that a new style of picture will bring the old crowds into their rooms again, and so they have been groping in every direction for it, and when some one announces that he has made a discovery that will "revolutionize the business," how eagerly they all rush after it and get "bit."

Others have thought they had only to put the price down to get up a rush, but the result has been, they have put themselves out by the operation, and been obliged to graduate. No, brethren, your harvest is past, and hereafter your crop will be made up of gleanings, and now let me suggest that you go back to first principles, and charge as you used to when you made only the Daguerreotype. The volume of business is past. The time to make pictures cheaply, because you made them in large numbers, is past. The demand hereafter will be more as a luxury than a necessity, and as you cannot do the amount of business that you formerly did, you must get more for it. You have had experience, and are able to produce good results, and now claim a proper compensation, or quit the business. You must do one or the other. A man who does a business of a million a year, will get rich on five per cent. net profit, while the man who does but ten thousand will fail. As the amount of your business diminishes, your profits must be larger. Is not that plain common sense? I hope we shall never degrade the business as it is done in England, where they advertise "A piece of mince-pie and your picture for a shilling." The next thing will be, "Your boots blacked and picture taken for a dime." It will be a proud occupation then. Who seconds the motion to put up prices? Where photographers are on speaking terms (which is the exception rather than the rule), let them talk this matter over. Let it come before photographic societies for discussion. It is most important for you to know how to make your daily living out of your business; and if you will all unite, you can raise your occupation in dignity, value, and influence. If you do not, you may have to turn boot-black, to get a chance to sell your pictures.

W. D. G.

CINCINNATI.

"W. D. G.'s" remarks are quite sensible. We agree that better prices should be demanded for work, and that photography should never be degraded by low prices. We know it to be a fact in our own city, that those who get the most, do the most.—[Ed.]

## ON PHOTOGRAPHY.

THE efforts that have been made to bring the science of Photography to a standard approaching perfection, and the rapid advances it has made, reflect credit upon those who have devoted their time and talents to its cultivation. Whether it has yet attained to a degree of perfection that renders further progress improbable, is a question that time and experiment alone can answer; but that its practical utility has not yet been fully developed, and its different applicabilities not understood by the public at large, is no question at all. As a delineator of features, a producer of likenesses, it has had a good run; and in all the different branches of portraiture it has become indispensable. As a multiplier of copies of engravings, paintings, &c., as a business, it has been run entirely into the ground, while as an educator its value has not even been tested, excepting that the enormous quantity of pictures made and sold within the last five years have, in a measure, educated the public taste with regard to the fine arts generally. True, many stereoscopic views have been made and sold, representing scenes in nature, which have furnished much information to inquiring minds; but as no continued series has ever been published, illustrating any particular science, the information contained in them has been given in disconnected fragments, so that they have been sought more with a desire for amusement than a means of acquiring knowledge.

As the value of any art is in proportion to its utility, and its capability of giving information and pleasure, any extension of the area of its usefulness must enhance its value. Photographers should endeavor to extend that area, as well as endeavor to discover better modes of producing pictures. To give a few hints, I would beg leave to state that, by means of the stereopticon, photography can be made to illustrate all the branches of natural history—all the models of architecture and statuary—nothing too large for its grasp, and nothing too small for its searching, microscopic eye.

Take, for instance, botany. The cedars of California, three hundred feet high, can be represented on a screen one-twentieth of their natural size, which, making allowance

for the distance also represented, will give an adequate idea of their size and appearance; then, by means of the same instrument, the smallest particle of their structures can be so magnified as to represent their minutest organisms. What then is required to make photography the (right) handmaiden of science but connected series of negatives, illustrating the several branches of actual science. With such means at their disposal, and the public informed of the fact, scientific schools would be compelled to avail themselves of their benefit; for, by ocular demonstration, prejudice would have to succumb, if there existed any, on the principle that seeing is believing, for photographic pictures, unlike any other kind, bear magnifying almost indefinitely, and photographs taken from nature must represent it. Let photographers cast about them, and apply the science to every economical purpose for which it is suited, and there will be no end to the demand that can be created for slides.

R. G.

## PROCESS FOR ENLARGEMENTS.

BY M. BERTRAND.

THIS process does not differ in principle from that in ordinary use with chloride of silver. It consists, likewise, in impregnating the paper with a soluble chloride, which is transformed into chloride of silver in exposing a paper thus prepared beneath a negative, and in fixing and toning. I do not enter into lengthy details, as the manipulations are nearly all the same as in the ordinary process.

I prefer the *papier de Saxe*: evenness of substance is not absolutely necessary, but sheets having spots of iron must be rejected.

The first preparation of the paper consists in impregnating it with a soluble chloride. It is immersed or floated in the following solution:

Alcohol (36°),	.	.	100 parts.
Benzoin,	.	.	10 "
Chloride of calcium,	.	.	5 "

The most expeditious method consists in taking a dozen sheets of paper, and immersing them one by one in the bath, with the aid of a glass rod. When a certain quantity

is immersed, they are all turned in a heap, and withdrawn one by one; then hung up to dry.

The improvement effected by the benzoin consists in completely stopping the pores of the paper; air and moisture can no longer penetrate the proofs, which are thus protected from the principal, if not the only source of deterioration. The benzoin also imparts the gloss of albumen to the paper, but in a less degree.

This chlorized paper will keep a long time. It is sensitized by being placed in contact with the following bath:

Water, . . . . .	100 parts.
Nitrate of silver, . . . .	15 "

If it is desired to keep the sensitized paper a long time, it must be placed in a box with chloride of calcium.

The exposure under a negative is shorter than with albumenized paper: the proof is printed deeper than is required ultimately. If the exposure is continued a long time, the blacks become dark green; but this need give no concern, as the toning-bath restores the blacks.

For toning, I employ M. Bayard's formula:

Water, . . . . .	1000 parts.
Chloride of gold, . . . .	1 "
Sal ammoniac, . . . . .	20 "
Hypsulphite of soda, . . .	4 "

Or the acetate bath:

Water, . . . . .	1000 parts.
Chloride of gold, . . . .	1 "
Acetate of soda, . . . . .	30 "

Or any other toning-bath.

The proofs rapidly assume a black tone, and are fixed in

Water, . . . . .	100 parts.
Hypsulphite of soda, . . .	20 "

When the proofs are well washed, they are left to dry, then rubbed with a tuft of cotton-wool, or a piece of flannel, to impart lustre. It must evidently be useless to varnish them. *Bul. de la Soc. Fran. de Phot.*

## ENGLISH PHOTOGRAPHS.

THROUGH the kindness of our friend, G. Wharton Simpson, Esq., editor of the London *Photographic News*, we have been favored with a parcel containing a number of specimens of photographic work done in England, of carte-de-visite, stereoscope, and larger size. The former are by over a dozen different artists, printed in a variety of styles, and altogether showing the work to be tasty and good. The stereoscopic views are "Wilson's Scotch," "England's Swiss," "Blanchard's Isle of Wight," "Bedford's Kenilworth Castle and Churches;" views made from collodio-bromide of silver negatives, by B. J. Sayee; on Dr. Hill Norris's rapid dry plates, by Sampson, and a number of the animals in the Zoological Garden, photographed from life by Frank Haes. The latter we have previously spoken of as very curious, interesting, and successful, and reflecting great credit upon the patience and perseverance of the artist. Only the removal of the iron bars of the cages is needed to make them most perfect. With the work of Wilson, England, and Blanchard, our readers are familiar. Blanchard's Isle of Wight pictures are charming views of charming places, and are new and fresh to us. Some of his instantaneous marine views are specially fine. Bedford's "Kenilworth Castle" is remarkably successful.

These are followed by a very pleasing landscape view by Mr. J. Mudd, made with his collodio-albumen process, and a number of *subject* pictures, made with the new Dallmeyer portrait and group lens, by Messrs. Robinson and Valentine Blanchard. Mr. Robinson's picture of the "Mountain Dew Girl, Killarney," is a print about 16 × 20, and shows beautifully the skill of the photographer, and the great power of the lens. "The Flower Girl," "The Ballad Singer," and a "Pleasant Gossip" (group of three ladies), by Blanchard, also show great taste and skill. The first is a remarkably fine picture in every way, as is also the second, except the effect of the background, which is apparently painted, but again looks like a woodbine with its thousands of leaves in motion. The "Pleasant Gossip" is certainly purposely made out of focus, no doubt to give

DRY your plate thoroughly before flowing the collodion over it if you would have your film secure, and especially in damp weather. This is very important.



it more of the effect of an oil painting. The effect is not pleasing at first, being the exact reverse of what we are all trying to attain here, but one learns to admire and like it very much. The figures are arranged to look somewhat cross-eyed, as, some one has maliciously remarked, two ladies cannot look straight at each other while having a picture taken, without laughing. "The Zealot" and "The Scholar," by Blanchard, are not with the same lens, but are of a gentleman who impersonates "The Scholar" in one, and the vehement, exhorting priest in the other. The lighting is very effective in them. "The Zealot" was a presentation print to one of the societies, if we are not mistaken. Mr. Robinson's "Somebody Coming," closes the list, was also a presentation print, we believe, and is an admirable thing, both in design and execution. It represents a young girl seated on a log at the foot of some trees, listening, with marked pleasure on her face, to the "coming" footsteps of another. Both figures are dressed in sweet rural style, free from invisible bonnets, and crinoline, and waterfalls, and the whole is beautiful. "Subject pictures" are a branch of the art not yet much practised here, though tending to improve the *art* of photography greatly.

Mr. Simpson also sent us one of Woodbury's photo-relievo intaglio plates, which is a great curiosity. We have yet had no time to experiment with it as instructed by Mr. Simpson, but hope to do so, and report hereafter. We have had a real photographic treat with the few friends who have seen these pictures, and wish that all of our readers could enjoy them with us. While we value them, we value more the good feeling and kindness that sent them.

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## VIEWS IN KENTUCKY.

I HAVE just returned from a trip to Rockcastle River, in the southeastern part of the state, where a party of us have had a delightful time hunting, fishing, photographing, and enjoying ourselves generally.

I succeeded in adding some twenty fine

negatives to our catalogue of stereos, of which I send you some prints.

I will now endeavor to comply with your request, and furnish you the formulæ for our stereoscopic work. Though neither new nor "entirely original," if it will be of benefit to any of your numerous readers, here it is:

### COLLODION.

Alcohol and Ether, . .	equal parts.
Iodide of Ammonium, . .	1½ grains.
"    Cadmium, . .	2½ "
Bromide Cadmium, . .	2½ "

Dissolve, and add the cotton.

### BATH.

Silver, . . . .	45 grains.
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### DEVELOPER.

Water, . . . .	64 ounces.
Sulph. Potass, . . . .	1 "
Protosulphate of Iron, . .	1½ "
Sulph. of Iron and Ammonia, .	2 "
Acetic Acid, . . . .	4 "
Liq. Ammonia, . . . .	4 drops.
Alcohol, . . . .	2 ounces.

### FOR SENSITIZING PAPER.

Float on a 45 or 50-grain silver solution, and fume; tone with gold and tungstate of soda.

I albumenize all my glass, and put them into a closely covered grooved box, to protect them from dust and dampness.

As soon as the negative is developed and rinsed off, flow it with glycerine (diluted with ⅓ part water), and slip it in the box. In this state, it may be kept for any length of time, and cleared, and, if necessary, redeveloped or strengthened at pleasure, though generally it will be found sufficiently intense without.

The glycerine is certainly a great desideratum for the outdoor photographer, and saves a great deal of time, as you can clear your negatives at your leisure, on your return home. I have kept them for six months in the house after a trip, and found the film apparently as moist as the day they were developed.

I wish you could have made the trip with us; I think we could have shown you some as wild scenery as you ever looked upon.

The great drawback was, that some of the finest views were, photographically, inaccessible.

In order to reach the points from which most of the views were made, we were obliged to take all the traps up the river in a skiff (as both banks are impassable masses of rock and thick undergrowth), and at several points in the Narrows we were compelled to unload, lift the skiff entirely out of the water, and carry it over the rocks to the deeper water above. I should like to give you a full description of the trip, but cannot do it justice.

Should you ever, Mr. Editor, turn your steps westward again, I hope you will visit our city, and make a trip with us. I promise you shall enjoy yourself.

Yours truly,

JAMES MULLEN.

LEXINGTON, KENTUCKY.

Mr. Mullen, our readers will remember, is of the firm of Carpenter & Mullen, who, some time ago, sent us some very interesting views of Kentucky scenery. At the time we noticed them, we requested those who sent us specimens for examination, to inclose their working formulæ also. Mr. Mullen has taken the hint, it will be seen. We desire that others should do this, not that we always expect anything new, fresh, or strange, but it will secure the publication of different formulæ, and give others an opportunity of trying them. Hardly two men work alike, and we want this to be the special organ of the working photographer.

The views sent by Mr. Mullen are certainly very wild and charming. We know we should have enjoyed a feast of photographic and social pleasure had we been on the trip. "The Devil's Candlestick," "Cave Glen" (2); "Views in the Narrows, Rockcastle River;" six very charming views of the wildest confusion of rocks and water; "Deer Leap;" "Upper Drift Rock;" "Bee Rock;" "Whirlpool;" "Upper Rapids," and "Panther's Leap." The above are all on the well-named Rockcastle River,—wonderful formations of rock piled up in castellated shapes; eccentric windings and whirlings of water, with an abundance of tree studies, give the artist plenty of material for his camera—if he can get at them. A trifle longer exposure here and there would have secured still better re-

sults. We know the difficulty, however, of taking such pictures.

"Chimney Rock," Kentucky River; "Devil's Umbrella," near Frankfort; "Rock House" (2); and the "Boone Monument," at Frankfort, close the series. "Chimney Rock" is an immense pile of rocks piled one on the other, high in the air, perpendicularly and alone. A man standing at the foot of the pile gives one a good idea of the height; a group of persons on the top look like mere specks of humanity. Photographically, the picture is an excellent one. The tungstate of soda and gold toning bath, gives a pleasing color to the prints, though rather cold for landscapes, but it may be varied to suit any taste.

### A NEW PRINT-WASHING MACHINE.

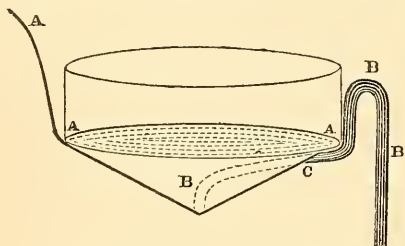
BY J. M. YOUNG.

I THINK the majority of photographers will agree with me when I say that nothing operates more against the art in the mind of the public, than the evanescent character of our photographic prints. Very few, I daresay, have escaped replying to the query, "Will they change color?" And if the reply is honestly given, it will be anything but satisfactory. Yet it is universally admitted that thorough washing is the remedy. That a thoroughly good washing machine is not "kept on the premises" of most photographers is obvious, if we examine the contents of the printsellers' windows.

I give below a diagram and description of a "machine" which I had constructed five years ago from "original designs." It does its work effectually and quickly; and if the permanency of the photographic print depends on thorough washing, I believe it capable of effecting the much to be desired result.

The vessel is round, and made of zinc. It is 2½ feet in diameter, and 9 inches deep from the top to the false perforated bottom—which is movable, so as to get the cone-bottom cleaned out. A A A is a half-inch supply pipe going the whole round of the vessel on the top of the perforated bottom. This pipe is of India-rubber, and small holes are cut, to make the water play in every di-

rection. This keeps the water, when above the level of the false bottom, in constant



motion. B B B is an inch syphon, the mouth of which is placed as near to the point of the cone-bottom as possible. It comes to the outside of the vessel at the point C, so that the space occupied by the prints may be kept clear for their uninterrupted motion.

It will be seen that the vessel will fill and empty itself every few minutes. The hypo being heavier than the water, will fall into the cone-bottom, and be *completely* carried away before the new water again rises to cover the prints, leaving each new water minus the whole of the hypo washings of that which preceded it. It will be apparent that prints subjected to this treatment for a couple of hours, will be far more effectually washed than if they lay twenty-four hours in a vessel through which a current merely passed, leaving nine-tenths of the hypo at the bottom, with the prints on the surface packed in one mass, secure against any power the current may exert from below. Prints once placed in the vessel shown above cannot "clog" together, for even while they lie on the perforated bottom the water from above plays upon them, keeping up (unless the quantity of prints be very large) a continual stream.—*Photographic News*.

Should trouble occur from the water dribbling over the bend of the syphon, fix the vessel to one end of a piece of board, with a strip of wood underneath to serve as a fulcrum. On the opposite end a stone is placed, so that the board, resting on the fulcrum, is held down at that end, until the vessel, filling with water, being heavier than the stone, is tilted over slightly, and the water thus filling the syphon, is run off. The vessel then resumes its position, the stone being heaviest, and so the operation is repeated.

## PRINTING PORCELAINS WITH- OUT A PRINTING FRAME.

MANY of our readers would be glad to try their hand at printing on porcelain, but do not care to buy a printing frame until they have tried first the probabilities of success. The following plan will aid them, and we have had a cut made to illustrate it. Lay



down your sensitized porcelain plate, and upon the corners of one end place small pieces of shoemakers' wax; adjust the negative so that the figure will be in proper place when printed, and press it down upon the wax firmly; now turn the porcelain on top, cut the waxed corners off diagonally, and the porcelain plate may be removed and replaced at pleasure. When you put your plate back on the negative, match the corners properly, fasten the other corners and sides with clips, and make your exposure. Should you desire to watch the printing, you may remove the plate, and do so, as it is always sure to come into proper place again if the wax be firm, and a little care exercised in sliding down the plate. The clips serve as a very clever inclination to the light. During exposure, however, the arrangement should be laid upon or against a black cloth or board (as shown in the cut), to prevent light getting in at the back; or an old black slouch hat would be just the thing. This plan will answer equally well when the figure is either low or high on the negative, and the size of either negative or porcelain may be varied as far as the clip will reach.

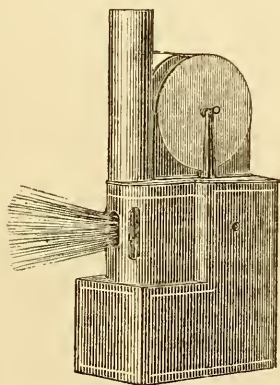


It is always desirable, in printing porcelain as well as other pictures, to have the image near the centre of the plate. This does not always suit the image on the negative; but in the cut we show how easily this can be arranged by using this novel plan, *i. e.*, by adjusting them to suit each other, and the end desired is accomplished.

We are very sorry we are unable to say with whom the plan originated, but, no doubt, with some good, clever fellowcraft.

### MAGNESIUM LAMP FOR THE MAGIC LANTERN.

THE American Magnesium Company, whom, we trust, will be amply repaid for their patient and continued experiments in perfecting and cheapening lamps for photography and the lantern, have sent us, for inspection and trial, one of their improved lamps for the magic lantern. We accurately described the first lamp made for this purpose by the American Magnesium Company, on page 235 of our last volume. The present lamp is very much the same in form, as will be seen by the cut, as the other, a



change having been made in the reels used for holding the ribbon, and in the draft secured. Prof. Henry Morton, Ph. D., exhibited the workings of the lamp at a late meeting of the Franklin Institute, and has kindly sent us an early copy of an extract from his report printed in the Franklin Institute Journal. It so accurately describes what we wish to say that we cannot do

better than use his own words. After describing the mechanism of the lamp as we have done, he says:

“The whole structure is exceedingly compact, so as to fit easily a common magic lantern box. The most important novelty in this instrument is the arrangement of the chimney and draft. This is entirely closed with the exception of the opening shown directly in front of the flame. By this means *the draft blows directly into the face of the light*, thus sweeping off the smoke and making the intensest light exactly where it ought to be. The efficiency of this arrangement is easily proved by opening the door at the rear for removing the ashes, when the light will fall off to about half its former brightness. The practical performance of this instrument as it now is, is of the most satisfactory character. The lamp was lit, placed in a lantern, and used for about twenty minutes in the exhibition of various photographic views, without the least variation in light or need of adjustment, and was finally extinguished only because no further experiment with it was desired. The quality of the light was most excellent, comparing favorably with that of the best oxyhydrogen arrangement, and the steadiness of the flame all that could be desired for lantern exhibitions.

“An account of this improved lamp was sent about three weeks since to the editor of the British Journal of Photography, who, in his paper, No. 340, p. 534, thus expresses his opinion: ‘On receiving Dr. Henry Morton’s letter in which the improvement was described, we lost no time in obtaining and testing a chimney similar to that described by him, and the result has proved most satisfactory.’ ‘Mr. Solomon, who was present during the trial, and with whose lamp the experiment was performed, unhesitatingly expressed his opinion that in consequence of this improvement, a light of equal intensity might be obtained from one ribbon of the metal as was formerly obtained from two. This of course expresses at once a saving of one-half by the adoption of the new chimney. But in addition to this, there are collateral advantages, such as increased steadiness, &c.’”

The dimensions of the lamp are:

Length of base, . . .	6 inches.
Width " . . .	4½ "
Height to top of chimney, .	13 "
" " " reels, .	11½ "
" " centre of flame, .	5½ "

Another act of the American Magnesium Company must not be overlooked. They have reduced the price of their metal to one-half of former rates. Now that it is so cheap, surely more will be done with it, and every one able to afford to experiment with it.

## PHOTOGRAPHIC SUMMARY.

BY M. CAREY LEA.

ENGLAND.

*Weak and Strong Printing-Baths.*—The Editors of the *British Journal* give the results of some experiments made to supplement those of Mr. Davies on this subject, which have been already summarized here.

They conclude that equally good results cannot be obtained on weakly salted and sensitized paper, as on strong—that the necessary time of exposure is greatly lengthened, and that prints so made, do not tone equally well in the gold-bath. These results, it will be seen, are quite contrary to those of Mr. Davies, and it would seem that it is extremely difficult to harmonize the experience of different workers on this point. They further conclude that even when the salting is reduced as low as five grains, that the paper still wants a sensitizing bath of at least 50 grains of nitrate to the ounce. They confirm Mr. Davies' results as to the efficiency of an application of alcohol, and subsequent drying by the fire, to prevent the removal of the albumen by weak sensitizing baths.

To the foregoing results may be added the consideration that prints made on strongly silvered paper have undoubtedly a better prospect of permanence than those on weak. A great element of permanence lies in the reduced gold extracted by the print from the toning-bath, and the quantity of this is exactly proportionate, other things being equal, to the quantity of metallic silver reduced in the operation of printing. It is the metallic silver only, that has the power to substitute itself for the gold in the toning-

bath, and it can scarcely admit of a doubt that most silver is reduced in printing when the supply of nitrate is most abundant. This better prospect of permanence, is a powerful argument in favor of the strong printing-bath.

*Photographic Enamelling.*—Joubert proceeds as follows: A glass plate is coated with plain collodion, then with honey and albumen, 3 parts each, saturated solution of bichromate of ammonia, 5 parts; water 20 parts. This is dried for a few minutes over a gas-stove, then placed in contact with a fine and delicate transparent positive of the subject to be enamelled, and is printed.

Joubert finds an advantage in printing by the magnesium light, in consequence of its perfect regularity of effect, and affirms that it gives very soft round pictures, reducing the strength of contrast by its penetrative power.

The cost of the magnesium wire is one penny sterling on each print. The transparent positive, with the prepared plate, is held at a distance of about six inches from the flame.

On removing the positive, a faint brown image is visible on the prepared plate. The enamelling powder is brushed on, and adheres to those parts that have not been acted upon by the light, which remain tacky; and the amount of this adherence varies with all the half-tones and gradations. The plates are then washed with alcohol, to which a little nitric acid has been added, and finally with plenty of water.

The collodion film is then transferred to the substance on which the picture is intended to be finally obtained. The collodion film, in the operation of burning, would carbonize and disfigure the picture; it is therefore dissolved away with a mixture of alcohol and ether. The plate is next burned in a muffle.

The editor of the *News*, also describes these processes, after witnessing them personally, and speaks of the beauty of the result, and the surprising rapidity with which it is accomplished, as rendering this an important branch of photography.

*Collo-Developer.*—Mr. Samuel Fox writes to the *News* "that the collo-developer has been used in his establishment exclusively

for over a year, for all sorts of work,—portraiture, landscape, and copying; in all weathers, and under all temperatures." That he has experienced the greatest benefit from its use; that no longer exposure is, under any circumstances, required; and that the negatives are obtained by the first operation, with no need of after intensification. Also commends the immunity it gives from stains and fogging.

*Cyanide.*—Another case is published of a photographer being disabled by incautious use of cyanide.

*Substitute for Collodion.*—Persoz proposes to dissolve silk in chloride of zinc, first digesting the chloride with oxide to remove any free acid present. After the silk is completely dissolved, the chloride of zinc is removed by dialysis. To effect this, the solution is placed in a cylindrical vessel, the bottom of which is closed with parchment, and plunged under water. In a few days the metallic salt percolates through the membrane, leaving a solution of silk in water which may be iodo-bromized; spread on glass, dried, and sensitized.—*Ibid.*

*Leptographic Paper.*—A company has been formed, and has gone into operation in Paris, for the preparation and sale of paper under this name. It is sold ready sensitized, and in a condition to keep for a considerable time. It is asserted that its preparation is such, that the silver compounds are kept wholly upon the surface, and that a minute or two of exposure to the action of weak hypo, suffices to clear the print, after which the fixing solution may be removed by an extremely brief washing. (This result was not obtained on trial by the editors of the *British Journal*.) No explanation of the mode of preparation is given.

#### GERMANY.

*Retouching Negatives.*—This subject continues to excite great interest. The last number of the *Berlin Mittheilungen* comes with a very beautiful specimen of work, fully equal to that published some months since by the *Vienna Correspondenz*. It was printed from a retouched negative by Graf, and its appearance excited considerable discussion as to how it was obtained, as to which no particulars had been given, though

it was understood that Graf generally retouched his negatives with Indian-ink. The Vienna negative was supposed to have been retouched with lead-pencil. One photographer remarked that he had seen negatives from Vienna, completely worked up in all their parts with lead-pencil.

The advantage of operating upon the negative, will be appreciated by all, as the work is thus done but once, for as many proofs as may be required. The effect, when well done, is very beautiful. The effect of a perfect bloom of youthful complexion is obtained; the contours of the face are rounded, perfect transparency of shadow is obtained, and the whole artistic effect of the portrait is heightened, so that each print, without any separate attention, looks like a highly finished miniature painting in monochrome.

The subject is one which will amply repay the attention of photographers.

*Color for Retouching Negatives.*—Grasshoff places the yolk of an egg in a glass, and mixes with an equal quantity, or a little less, of linseed-oil, or linseed-oil varnish, and mixes them thoroughly; then any dark red or black pigment, in extremely fine powder, is well-ground up with water, rather thick, and the above mixture rubbed into it instead of gum. It is right if, when rubbed on paper, it has a slight lustre, and does not come off when rubbed with the finger. Grasshoff prefers Vandyke red as color. The above mixture adheres well both to glass and to varnish.

*Retouching Negatives.*—Grasshoff recommends the same tempering, using India ink with a little pure indigo (not "carmine of indigo.") *Ib.*

*Removing Silver Stains from Clothes.*—It has been remarked, that the same property which causes corrosive sublimate to bleach out silver prints in the "magic photographs" renders it also capable of removing stains from clothes, with less danger to texture and dyes than cyanide of potassium. (It is very effectual.) *Ib.*

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ALWAYS filter your bath after each day's work, out of doors, so as to have it free from dust and other particles when you next want to use it.



### GERMAN CORRESPONDENCE.

Photographic Fancies—Papier Leptographique—  
A Sensitive Reagent for Hypo for testing the  
Water in which Prints have been washed—  
Photographs of Flowers—Reproduction of Oil  
Paintings.

FESTIVITIES and banquets do not usually belong to the things of lasting interest, still I cannot avoid mentioning, with a few words, the celebration of the third anniversary of our Photographic Society, which took place on the 24th of November, particularly as these celebrations have become the source of a peculiar kind of photographic literature, which tries to throw around our otherwise prosaic doings, the charm of poetry; these festivities have given birth to a line of photographic drinking songs. We have a photographic "Beer Gazette," filled with photographic jokes, and, as a climax to this literature, we even have a photographic comedy. I regret my inability to give you samples of these poetical gifts in the English language. I shall send you all that has appeared in print, and you may attempt, yourself, to translate what suits you. Mr. Fowler has given several extracts in the British Journal of Photography; the authors are Dr. Jacobsen and your humble servant; we hope that the good purpose will be our excuse.

A photographic trick of a peculiar kind, excelled the well-known inventor of the magic photographs, Mr. Grüne; he presented a gigantic sheet of paper, 12 feet in length, on which absolutely nothing could be seen. At his command, by means of a large white-wash brush, the paper was painted over with a peculiar fluid, and instantly there was developed an original picture representing the triumph of Apollo, riding on a camera towards the sun. The drawing was made with cyanide of potassium, and developed with chloride of iron solution. The picture appeared in strong Prussian blue color.

The latest photographic miracle which I have to chronicle, is the "Papier Leptographique." I alluded to this in my second letter, but had at that time seen no samples of it; at present I have them before me, and feel convinced that it is

nothing else but a sheet of paper covered with Simpson's chloride of silver collodion. The paper may have received a previous preparation of arrowroot or gelatine. The prints on these papers appear very fine, particularly the sample pictures, but this is probably more due to the excellent negatives, as I have seen splendid copies from these same negatives, on ordinary paper. I would not, however, advise anybody to let the washing of prints taken on this paper be so brief as the programme of the Society describes it, otherwise a turning yellow might take place on this paper, as well as on ordinary albumen paper. I believe the paper for productions, in quantity, is too expensive, but it might be suitable for amateurs who wish to take a few copies for amusement, or for smaller photographic establishments. The price is about double that of silvered albumen paper. I must not fail to mention the ingenious hypothesis of my friend, Dr. Jacobsen, as regards this paper, which he stated, on first hearing of it. He said that a special kind of hens (*Lep-togallinæ*), which were fed on nitrate of silver, and in this way produced, in an organic way, the albumenate of silver, furnished the eggs for albumenizing this new paper, and whenever they ceased laying, they were worked up as other silver residues! In the programme of the "Société Leptographique," I notice that they say that if the prints, after being fixed with hypo, are drawn three or four times through fresh water, no trace of the hypo can be detected in the last water by testing it with nitrate of silver; now it is true that nitrate of silver forms a brown precipitate with hypo, but this test possesses so little sensitiveness, that it cannot serve as a criterion for the absence of hypo in the prints. I, myself, have recently examined into the different modes of testing hypo in the water, in which prints have been washed, and cannot say that any one of them has satisfied me entirely. The one recently proposed by Reissig is very delicate; he introduces the silver pole of a galvanic battery into the water, and if it contains the smallest quantity of hypo, the silver at the positive pole of the battery will turn of a brownish color; but in this test a galvanic ele-

ment is necessary, which to keep in order, may prove troublesome. I have succeeded, however, in finding a test which is at least as delicate as the one of Reissig, and much more simple. It is based on the reaction of hypo on iodide of starch. When you add hypo to iodide of starch, the same is discolored instantly; the more concentrated the iodide of starch, the more hypo will be necessary for discoloration; if, therefore, a very dilute solution of hypo, such, for instance, as the water in which prints have been washed, is to be tested, a very dilute iodide of starch will be necessary.

I prepare the same in the following manner: one part of arrowroot is dissolved in a little cold water, and afterwards about 100 parts of boiling water are added. In this manner I obtain a colorless solution of starch; this solution of starch is mixed with one-fifth of a straw-colored solution of iodine in iodide of potassium; this gives a beautiful blue solution of iodide of starch, which will keep for several weeks, and might be kept on hand by stockdealers. If the water in which prints have been washed is added to this solution of iodide of starch, it of course becomes diluted, and consequently paler, even if the water is perfectly pure; this might easily be mistaken for a discoloration, therefore, it will be better to proceed in the following manner: take two test-tubes of about equal diameter, and put in each of them about a cubic centimetre of iodide of starch; add to the one, about 8 times as much pure water, of the same kind as has been used for washing, and to the other, the same quantity of water in which the prints have been washed, and it will then only be necessary to shake both test-tubes up well, and hold them against a piece of white paper and compare them; even by lamp-light it is an easy matter to discover discoloration, if the same has taken place. The easiest mode is to look vertically down into the tubes. I have tried this process carefully, and find that when only one millionth part of hypo is present, a distinct discoloration takes place. On account of this extraordinary sensitiveness, great cleanliness in the glasses and the hands is required. Let us hope, that with the introduction of Swan's carbon process, the un-

certainty, as regards permanency, will be settled forever.

Recently, a new branch of photography has been started here, with more success than I at first expected. It is the taking of flowers, native as well as exotic, in *carte-de-visite* size. This, in itself, is not hard to do. The main difficulty consists in obtaining good specimens of flowers. The often insufficient chemical action of the yellow or red leaves, is partly corrected by dusting the leaves with a fine white powder, or to cover, in the negative, parts which appear too thin, and wanting intensity. The pictures are of *carte-de-visite* size, colored with aniline colors, varnished, and finally the Latin name of the flower is printed on it, and thus they start on their journey through the world. They are much used in schools for botanical purposes; they serve young ladies and draughtsmen for patterns, &c., &c. Large quantities of these pictures are exported to England, and perhaps they might find a sale in your country.

Another field of photographic activity, and which has gained much ground at present, is the reproduction of oil paintings. You know with what difficulties you have to contend in this branch of photography, partly on account of the limited actinism of the oil colors, partly on account of the lustre of the strokes of the brush. These difficulties vary with the manner of the painter, and are almost insurmountable in pictures like Hildebrandt's, or in old paintings that are darkened with age. Even the best of photographers obtain in the reproductions of such paintings, under the most favorable circumstances, only as an exception, a negative from which prints can directly be made; as a rule, some parts are too thick, others too thin, and it becomes the study of the photographer so to alter his negative as to furnish prints which correspond with the character of the painting.

In this branch, Mr. Milster, a young and highly intelligent artist, worked with wonderful success with needles. He carefully scratches out the places that are too thick, or where the lustre of the strokes of the brush has interfered; other parts that are too thin, he covers with Indian-ink, partly on the glass and partly on the varnished side;

he then makes a sample print, and from this he retouches the negative until he obtains a satisfactory print; but often this is not sufficient, as some deep shadows appear in the print too weak; then he has recourse to suitably cut stencils, which are placed on the negative, and some parts are even exposed to light after leaving the printing frame.

It is evident that the printing has to be done by an intelligent and artistic printer. The majority of the photographic printers are not suitable for it, but the result of Mr. Milster's labor is so extraordinary, that many artists employ him for reproducing their paintings, instead of copper-plate engraving. The Leipsig Art Gazette protests against this neglect of engraving, but I doubt that it will avail anything.

Very truly, yours,

DR. H. VOGEL.

BERLIN, November 26, 1866.

## NEW YORK CORRESPONDENCE.

IN spite of the thousand and one pleasures which ever cluster about the approaching holidays, the endless number of fairs, which the husband as well as the lover must visit, on the smiling, winning invitation of wife, daughter, or a still more persuasive enchantress, with pockets well filled with valuable greenbacks, there to spend a pleasant, though *exhausting* hour, and leave minus money, yet loaded with gaudily dressed dolls, with pockets expanded with pinecushions, loves of little worsted mats, and a couple of bed-quilts, perchance, on either arm, by way of balance, many visit the places where dull science and slow-progressing art are the feast. I am happy to inform those who would like to know, that there was a good attendance and an interesting meeting of the Photographical Society on Monday last, proving conclusively that our glorious art is yet the first of pleasures with many.

In the absence of either of the presiding officers, Prof. O. N. Rood was called to the chair.

Mr. C. A. Thomas was elected to membership.

Mr. I. Loeffler, of Staten Island, pre-

sented a series of stereo views, made by him last summer in the Catskill Mountains; they were gems—the kind we always keep and always exhibit. Mr. Hull exhibited some 9 × 11 prints from tannin plates, being a series of views made by him in October, of some of the beauties of Central Park. Mr. Newton exhibited quite a number of 9 × 12 paper negatives, together with the prints from same; they attracted much attention and admiration. For some kinds of work, this process is invaluable, its extreme portability and certainty of result going far to recommend it to the tourist, yet it has never been popular, and, judging the future by the past, it never will be. Its great fault is its want of fine detail, such as we look for in grass, small foliage, &c. There is also a want of brilliancy, as though the contact in printing was wanting—close absolute contact as it should be—the image on the negative being diffused, as it were, through the paper, and not entirely upon the surface. There are some kinds of detail which it gives well, such, for instance, as masonry; here the strong contrasts between the brick and the white mortar, make a distinct sharp image. For those who visit all but inaccessible places, it will be useful for large work, and the following directions will serve to make it plain to any one at all familiar with photography. The paper should be the Saxe negative, of best quality: Dissolve 1 ounce gum benzoin in 16 ounces alcohol; pass the paper through this solution as in the salting plain paper process; when dry, immerse about ten minutes in a solution made as follows:

Water,	. . . . .	1 oz.
Iodide of Ammonium,	. . . . .	10 grs.
Bromide of Potass. or Cadmium,	4 "	

Dry again and put into the silver solution for about five minutes:

Water,	. . . . .	5 ounces.
Nitrate of Silver,	. . . . .	180 grains.
Acetic Acid, No. 8,	. . . . .	1 ounce.
Nitric Acid,	. . . . .	1 drop.

Wash well by laying the paper on a sheet of glass; finally pass it through a solution of 2 grains of bromide of cadmium in 1 ounce of water. To remove the last trace of silver, a



developer is made of five grains of gallic acid to one ounce of water, and to every six ounces of such, add one ounce acetic acid, No. 8, and one grain nitrate of silver—this last previously dissolved in water and added to the others—the whole to be about 100° temperature. In this, put the papers which have been exposed. Avoid bubbles, by moving occasionally. It will require about half an hour, but, as several can be developed at the same time, it cannot be called a tedious development. Wash again, fix in hypo, and finally dry between sheets of blotting paper, to prevent curling. When dry and smooth, oil with castor oil; any excess rub off with a cloth. You have now a negative well suited to many subjects, easy to carry and impossible to break.

Much discussion followed between some of the members, as to the value of the weak silver solution proposed by Mr. Newton, and first published in your Journal a few weeks since. Some claimed that it made just as good prints as a 60-grain bath, printed in half the time, and others were doubtful as to any such results with a 15-grain bath. It was subsequently referred to a special committee, consisting of Messrs. Newton, Mason, and Chapman, who are to report at the next meeting.

The writer, with all others who are hard to convince, hopes to learn that Newton's formulæ is as good as one four times as rich in the very precious metal. Prof. Charles A. Joy gave an account of some experiments he had recently made with carbolie or phenic acid as a developer. As the acid reduces the metals from their solutions, it was thought worth while to apply it to a plate which had been exposed in the camera in the usual way. A weak solution of carbolie acid in water did not develop any image. It was applied both warm and cold. One-half of an exposed plate was developed by iron, and the carbolie acid applied to the other half; the acid was allowed to drain off, and the iron developer applied in its stead. There was no development of the image; the acid prevented the usual action of the iron. It may be, that too much of the silver had been washed away. A solution of grape sugar was also tried, with a somewhat similar negative result. No experi-

ment was tried with a mixture of iron and carbolie acid. A most capital negative was exhibited by Prof. Joy. Developer used, was the one suggested by Schnauss, as follows:

Con. Sol. Sulph. Iron, . . .	4 vols.
“ Succinic Acid, . . .	4 “
Distilled Water, . . .	16 “
Alcohol, . . .	1 “

This developer acts rapidly; the blacks appear more detailed; lights remain transparent; half shade more delicate. The cost would prevent general use, but for occasional work it can be recommended. He also exhibited a print from a negative taken with a Steinheil portrait combination lens, in the open air, in five seconds, with Anthony's cadmium collodion, which had been left in a dark-room for nearly six years.

Some very interesting remarks by Prof. Rood, on the troubles of the nitrate bath, with other matter, must lay over until my next, unless you have more space to give me than I fancy you have.

Wishing to yourself, Mr. Editor, to each of your patrons, and to all, a Happy New Year,

I am, &c.,  
C. W. H.

NEW YORK, December 15, 1866.

### PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A MEETING of the Society was held on Wednesday evening, December 5th, and, in the absence of the President, Dr. Wilcocks assumed the chair.

The Chairman of the Committee on the Zentmayer Lens, Dr. Wilcocks, reported that the experiments were being continued, and that the Committee would report fully, in writing, at the next meeting.

The Committee on Dry Plates reported progress.

Mr. Geo. B. Dixon was unanimously elected to membership.

Messrs. Corlies and Borda offered the following amendment to Art. III, Sec. 2d, of the Constitution, viz.: “Any professional or amateur photographer can become a life member, on the payment of \$50; and any

member, not a professional or amateur, may become a life-member on the payment of \$20." Accepted, and laid over for a second reading.

Mr. Browne offered a 6 by 7 print of a horse, a donation from Mr. H. P. Norris, Philadelphia. The negative was made in less than a second, with a No. 1 Dallmeyer lens, 7 inch focus. The picture was a very remarkable one for an animal picture, and in every way excellent.

A number of Mr. Sarony's "studies," made by using his new rest and posing apparatus, were exhibited, and such remarks as "fine," "elegant," and "beautiful," that fell from the lips of the members present, conveyed but a slight idea of the superior beauty of these studies. The positions were graceful, easy, and comfortable-looking—that is, the subject seemed perfectly at rest and at ease. The rich tone of the prints added greatly to their beauty, and the paper on which they were printed, made by Mr. Sarony, was much and deservedly praised. Mr. Sarony's apparatus was explained, together with its advantages, and the pleasure and profit of an hour with him and his apparatus, were spoken of by Mr. Wilson. Some copies of water color studies, by Mr. Sarony, who is quite as much at home with the pencil as with the camera, were also exhibited, and gave much pleasure. Mr. Sarony's studies and posing apparatus are likely to create considerable improvement, and we think, an entire revolution in photographic portraiture.

Some English photographs were also exhibited, which are commented upon elsewhere. Mr. Blanchard's out of focus picture was curiously examined and criticized, and various opinions were expressed concerning it. All were much admired. Some additional specimens of ferro photographs of considerable beauty and perfection, by Mr. V. M. Griswold, were exhibited. Also some very remarkable carbon prints on iron plates, by Mr. Griswold. A letter to the Editor of this Journal, from Mr. Griswold, was read, wherein he stated that these remarkable pictures "were printed by an entirely new process, such as I think *no one has ever heard or thought of*. The little card pictures are, I think, the most remarkable

pictures, everything considered, that have been exhibited for years. They were printed in about 80 seconds, and, as you see, the material is so sensitive that the whole surface is darkened, and the effect of the vignette entirely destroyed; it is as near an *instantaneous* printing process as you can get at. I need not add that *no silver enters into the process*, and that it involves entirely new chemical combinations and manipulations from any process yet known.

"What range of tone I shall be able to command, experiment alone can determine. I also send a small picture on card-board, by another new process.

"Your Society *must understand* that the carbon pictures are only sent as an illustration of a remarkable process which *promises* some startling developments. Whether the promise will be fulfilled, remains to be seen. I forgot to say, also, that the carbon is a *direct printing process*, and there is no transferring or anything of the sort, the whole process being exceedingly rapid, and in a remarkable degree simple."

Mr. Browne expressed considerable interest in the carbon pictures, and said they were very remarkable if they were printed without silver.

Being first trials, they were, of course, imperfect in many ways, and no doubt, by further experiment, Mr. Griswold will secure wonderful results. In the direction of carbon printing lies permanency, and Mr. Griswold's experiments will be watched with a great deal of interest. His new film seems very sensitive, and promises to be very useful in photography. Most of the specimens were on whole size plates, of iron, and the subjects were landscapes near Mr. Griswold's laboratory at Peekskill, N. Y.

After examining the pictures and commenting upon them, the Society adjourned.

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IN washing your prints put them in the water face downward. This will often prevent blistering. Placing the prints in salt and water, after removing them from the hypo, also prevents blistering. Allow them to remain in the salt and water say five minutes, and then *gradually* dilute it and wash in the usual way.

## Salad for the Photographer.

### HOW TO PREPARE CANVAS FOR LARGE PORTRAITS.

1. GET a piece of prepared canvas, such as painters usually use; rub the little knots or lumps of paint down with fine emery and alcohol; then rub with alcohol until the paint is almost off. The rubbing must be done in circles, commencing in the centre of the canvas. Care must be taken not to rub *too much*, thereby showing the bare canvas. After rubbing, wash the canvas well with water.

2. Mix kaolin with alcohol to a paste, and lay a good even coating of the mixture on the canvas, and let it dry hard, so that when the stretcher is shaken the kaolin falls off in scales; now wash well with water, and salt with any of the usual salting solutions. After the picture is printed, toned, and fixed, give the canvas a coat of *megilp*. It is now ready for the painter.

P. S. Some use gelatine as a last coating; but *megilp* takes the paint much better, and does not peel off. Mr. J. O. B. Inman, the celebrated artist, and several other well-known portrait painters, prefer the above method of preparing canvas to any other now in use.

V.

MR. ROBERT BENECKE, St. Louis, Mo., incloses \$5 for his *Photographer* for 1867, and writes, viz.:

"Before concluding, and wishing you a happy new year, permit me to give you a few grains of spice for your salad-bowl, if you think they will add to the flavor of your welcome monthly mixture.

"*First. To Print on Canvas.*—Prepare the canvas by washing it over with a solution of bicarb. of soda in water, and rub it until it is evenly wet. Wash with water to remove the soda, and then lay a piece of albumen paper, of the size you wish to make the print, face down upon it, and rub it well to secure contact all over. Lift up the paper and remove the bubbles, if there should be any, with a brush. After drying, coagulate the albumen by pouring on some strong alcohol; dry again, silver with a 40-grain

silver solution, slightly acid; print and fix in hypo.

"*Second. How to Manage a Turbid Silver Solution that gives Spots and Pin-holes, and how to Obtain Pictures Free from Them.*—After dipping, move the plate as usual, and bring the bath to a perpendicular position, and the plate, therein, to an inclined one, film downwards. In this way no dirt, floating pieces of the film, or needles, will adhere to the plate.

"*Third.* Blowing gently upon that corner of the plate from which the collodion has been poured off, will equalize the drying of the film.

"*Fourth.* In strengthening with sulphuret of potassium, especially when the solution is an old one, the negative is often covered with a blue deposit, which will impair the good printing qualities of the same. A fresh and strong solution of the cyanide of potassium will clear the plate at once.

"*Fifth.* The use of crushed white sugar in the collodion, will cause the plate to coat quicker in the bath, keep longer wet, and will not interfere with the other good qualities of the same. Use as much as it will take up.

"*Sixth. To Tone a Grayish-looking, and Reduce an Over-exposed Ambrotype.*—Pour on it a solution of 1 ounce of water, 1 ounce of iodide of potassium, and a few drops of tincture of iodine or nitric acid. Wash and use the cyanide again. Repeat this if it should not be clear enough the first time.

"*Seventh. To Straighten Card Pictures Permanently.*—I have tried rollers, heavy weights, &c., but nothing would answer so well as the following method: Lay the picture, after being dried and rolled, face down upon a cushion made out of 6 thicknesses of cotton-flannel, then roll a stick,  $\frac{1}{2}$  inch in diameter, over it, until it is straight, and it will remain so."

That is what we like. Will not many more of our photographers follow Mr. Bencke's example, and make our Salad for



the coming year, what it ought to be? We hope they will.

**MR. LEA'S COLLO DEVELOPER.**—Mr. Jos. Voyle, of Tuscaloosa, Alabama, writes: "There is great difference of opinion about Mr. Lea's developer. It is a *boon* to us. I find this peculiarity about it in my experience with it: the intensity is in proportion to the exposure; in thirty seconds I get full detail, not much intensity; expose sixty, and a brilliant negative results. Different collodions give other results. With a thin lightly iodized collodion, well ripe, I get exquisitely fine detail, soft beyond description; the high lights full of detail as well as the shadows. Use a very thin collodion with but little iodide and bromide, and use the ferro-gelatine in developing as an experiment. I have not much chance to experiment thus, but I think you will not quit it if you will once fairly try it, for the detail is finer, or as fine; the high lights lose their chalky-white blankness; by long exposure, the necessary intensity is gained, with no danger of fog. Is not ferro-gelatine then a blessing? This cannot be done with any other developer that I am aware of. Can it?"

Mr. Voyle has sent us several other items for Salad, which we must lay over until our next.

**ENLARGING BY MAGNESIUM LIGHT.**—Mr. Charles Waldeck has been recently trying magnesium light for making enlargements. He says: "I have convinced myself of the practicability of it, having obtained an image sufficiently luminous, by means of two condensers 11 and 12 inches in diameter, and a focus of about 15 inches when used together. I lose a great deal of light though, and shall have to add a third condenser to shorten the focus. I think I can copy and enlarge old pictures by the means of two tapers. Presently I shall try one of the American Magnesium Company's lamps, and will further report to you." Mr. Carbutt is also experimenting in the same direction.

**STILL ANOTHER.**—We have received from a German correspondent the advertisement of some cigar-holders, the peculiarity of which

is, that as the smoker proceeds, a very pretty photograph is developed on the tube. How charming, to sit and enjoy your quiet cigar, and watch the image of your *Dulcinea* coming slowly out from the smoke, and appearing to you in your reverie!

**HOW TO GET RID OF IT.**—The photographer finds, that at the beginning of the day's work, the first plate or two dipped, will appear fogged, streaked, or marbled. If the bath be examined, a greasy-looking film, on the surface of the solution, will be discovered as the cause of this trouble. It may be removed by slowly dipping a dry glass plate in the bath before you begin work; it will collect the scum and cleanse the solution from it.

**PHOTOGRAPHY AND POETRY.**—A Yankee upholsterer, who sells his "duds" under the gallery of a brother photo, in his advertisement, which is a very long one, and after the style of "*Hiawatha*," goes off in the following strain about his "improved mattresses:"

"Always in the dawning morning,  
Lying on that soft spring-mattress,  
In a sort of waking, dreaming,  
I can see, as in a vision—  
I can see the walls around me,  
Covered o'er with splendid portraits—  
Portraits made from tiny tintypes  
Of the dear ones dead and buried,  
Made and finished up at ——."

This would indeed be the superlative of bliss; and no doubt the man sells a good many mattresses to those who believe him. We hope that no one will be able to sleep comfortably on any mattress until they have patronized the nearest photographer as much as they ought to. The photographer whose labors of love are carried on so near the mattress man, also becomes inspired, and says:

"He will make you wondrous portraits,  
That will look just like the living;  
Loving dear ones, dead and buried—  
After paying him the *greenbacks*."

Particularly the latter, we suppose. Oh, photography, thou art wonderful to inspire, and to help a man enjoy his mattress!

### OUR PICTURE.

It is hardly necessary that we should say one word respecting our picture in this number of our Journal. It is a specimen of photographic taste, magnificence, and excellence, such as is rarely met with. It is one of Mr. Notman's first efforts at the new cabinet size, and so successful and so suggestive at the present time, that he expressed a willingness to print it for us. Believing that *not one* of our readers would object, we accepted his generous offer, and he has been hard at work ever since to get them ready in time. If we are not wrong, it will tend to create a wonderful revival with respect to the new size. We certainly think that every one should go to work now and take this as his model. If such pictures as these, or those half as good, will not become popular, then photography had better close up. We, however, leave photographers to themselves with this admirable gem, and when they come to any conclusion, would like to know what they think about it.

The inner red line on the mount shows the exact size adopted for the mounting-boards for this size, and as we have the name of the artist printed below, so those who are making them have their names printed. We find the following excellent remarks by Mr. Charles Taylor, in the *Photographic News*, which are very appropriate here, and are worthy of the careful attention of our readers:

"The price of the new cabinet portrait, in order to secure its popularity, should not be too extravagant, and it must be palpable, that from its size and cost, it will not be given away so freely as its small and inexpensive predecessor. These considerations will doubtless cause many who have hitherto practised photography as a remunerative occupation to seek some other employment; and it will behoove many who are stout-hearted and true disciples, to begin afresh, not only, as they will have to do, in the mechanical department, but in the mental also. As the easiest and most agreeable way of cultivating taste and judgment, I would suggest that the student of photography should follow the example of the student of painting, studying the life-like pictures in

our public galleries, and, by comparing them with nature (looking at them earnestly, suffering the mind's eye to penetrate the sombre veil which time and age have thrown over them), learn to see how real and true they are; or, leaving the old painters to their well-earned glory, turn to the living forms which Wilkie and Mulready have left us, and in such works as these see that graceful ease, light, shade, and expression which rivet the attention of all, even the least educated.

"This mode of training the eye to see the light, shade, and reflections necessary to produce roundness and vigor, also discarding all accessories which do not assist the composition, must eventually conduce to less ill-usage of the lens than we now too often see in ordinary photography. If my humble suggestion be taken in good feeling by any who feel deficiency, I shall be glad that I have had the courage to propose this course of study."

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### COMMUNICATION FROM DR. M. CAREY LEA.

PHILADELPHIA, December 24, 1866.

MR. EDWARD L. WILSON.

DEAR SIR: I have examined the passage to which you have called my attention on page 252 of Humphrey's Journal for December 15, in which it is stated that arrangements had been made for semi-monthly articles from me.

I had not before seen the passage, and it takes me entirely by surprise, as I have neither made such an arrangement with the publisher of that Journal, nor thought of doing so.

Very truly yours,  
M. CAREY LEA.

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BACK NUMBERS.—By exchanging with others we are enabled to announce one or two copies of our first volume; a few of the second and third, and a few of the copies from July inclusive for 1866 for sale. Parties desiring the *Photographer* from the beginning can be accommodated.

## Editor's Table.

TO A. G. E., MARQUETTE, MICHIGAN.—We have never met the trouble, and cannot guess the cause. As it only occurs once in a hundred times, is it worth troubling about? Your views of the "Iron Dock" are very excellent and acceptable.

MR. C. R. SAVAGE, our old friend in Salt Lake City, has arrived home safely, and sends a number of prints, which are great improvements on those formerly made by him. It did him good to come East, get new tools, and "brush up a little." He travelled from Missouri home in his photographic wagon, and took views along the route. We have "A Mormon Camp, preparing to start across the Plains;" "A Home in Nebraska;" "O'Fallon's Bluff, S. Platte;" "Farm Scene on Steven's Creek, Nebraska;" and "Black Rock in Great Salt Lake;" of stereo size, and whole plate views of the "Devil's Gate;" "Sweetwater;" "Castle Rock, N. Platte;" and of the "New Mormon Tabernacle;" all very good, and showing what care and perseverance will do.

NEW PAPER WANTED.—A desire has been expressed for a paper without a glossy surface, but giving all the warmth, vigor, softness and detail needed in a truly artistic picture. Can we not be gratified by some one? The new size would be very acceptable on such paper.

PANTOSCOPIC APPARATUS.—While in New York a few days ago we were favored with an inspection of Johnson's Pantoscopic Apparatus and some prints made with it of different sizes. We hope to have a fuller description of it for our readers shortly and to make further comments thereon. Mr. C. A. Barry, 127 Grand St., N. Y., is the agent for America.

MR. W. R. GELDER, Portchester, N. Y., sends us a very pretty picture of a feminine female. It is very good—all but the *hands*! Thanks, Mr. Gelderd.

BERLIN CARDS.—Prof. Chas. F. Himes says of the Berlin cards, sold by Wilson & Hood: "I think the circulation of such pictures cannot but bring up the standard of taste." The same remark may be applied to Sarony's, and Notman's, and all good studies. Get them and *study* them, if you are anxious to improve and excel.

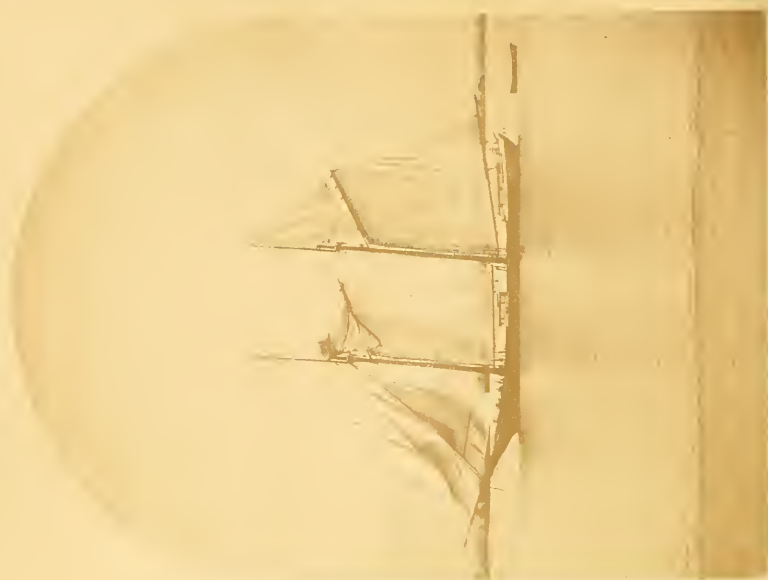
DISTILLING WATER.—If photographers will only believe it there are quite as many troubles occur in their daily avocations from the use of bad water as from causes that seem more mischievous. And there is no reason why this should be so. Every photographer can readily make his own distilled water in any quantity, in a little while and at trifling expense. In fact the expense will be nothing when compared with the loss of time and chemicals caused by using impure water. The Scovill Manufacturing Company have recently put into the market a small stove or furnace to heat with coal oil, which is very compact, handy, cheap, and the first thing to buy. One of the improved stills, sold everywhere as well as the stoves, is the next thing to buy, and you have a complete apparatus for making distilled water at your pleasure. If all photographers would use them, better work and better temper would prevail in their galleries. This little stove is fitted with a top so arranged as to keep the bottom of the still from the flame, and this top is just the thing for an evaporating dish to sit upon, thus making the stove fill two important functions, besides that of keeping the dark-room and chemicals warm in cold weather. It is really a useful and valuable article.

MESSRS. E. & H. T. ANTHONY & Co.—It is almost unnecessary to say that Messrs. E. & H. T. Anthony & Co. hold a place in the photographic craft similar to that of a little alcohol in the developer once in awhile. They make things flow along smoothly when at times they are working rough, and when old things are grown tired of they have something new and fresh to bring in,—“Anthony's Cotton,” “Anthony's Collodion,” “Anthony's Paper,” and “Anthony's Diamond Varnish,” are, not household but gallery words; and besides we are indebted to them for a great many other articles of use to which they are constantly adding. They have not only all that the photographer can *use*, but all the useful appurtenances to the art that he can *sell*.

WALNUT *vs.* GILT.—Mr. Wm. B. Holmes, 555 (three fives), Broadway, N. Y., is selling new and elegant Walnut Frames of various sizes, which are superior to anything of the kind in the market. Of bold and beautiful pattern, broad gilt insides and well finished, they are very fine and better than anything gilt or stained.







Boston Public Library.



Boston Public Library.

T H E

# Philadelphia Photographer.

Vol. IV.

FEBRUARY, 1867.

No. 38.

## TO A CLASS OF TROUBLED PHOTOGRAPHERS.

I AM glad to get you together at last, and to have a little conversation with you. While visiting your dark-rooms, I was not a little surprised to find that, notwithstanding your early teachings, your daily practice, and the quantity of instruction you have received through the *Philadelphia Photographer*, other journals, and books, that you were daily falling into error, getting into "sticks," as you see best to call them, and guilty of making work unworthy of the sons of Sol. Really, *ignorance* seems to prevail among you, and did you not all possess intelligent-looking faces, I could more easily excuse you. Now if you are sufficiently earnest in your desires to improve, I shall be glad to meet you, as a class, once a month, to instruct you somewhat, and to remind you of some things which you all well know and too often forget. I do not promise you anything new or startling, but will endeavor, by working before you and with you, to point out some of the reasons why you fail to secure good results, and how you may proceed to obtain them if you will.

If there are any before me who think their work is good enough, and who hold the opinion that they know as much as any one, I would state, that it is my desire that

they should not be present. I must insist, at the beginning, upon your promise that as far as requisite, you will forsake your old habits and forms of labor, and follow closely what I tell you. Under no other conditions, will I promise to benefit you.

I shall not attempt to interfere with, or make any suggestions as to your working rooms. My own are, as you see, arranged according to directions found in these pages. You observe, also, that I endeavor to keep all things around me in a cleanly condition. *This is all-important.* In many of your dark-rooms, I have seen collections of refuse, dirt, and stuff, that would disgrace a junk-shop. Every time a door was shut, or a step taken, a cloud of dust would arise, perfectly fatal to all clean manipulation. Observe, then, that everything we are about to use, is clean and pure.

I shall now aid you in making a bath, collodion, &c., and then leave you to experiment, and request each to bring me a negative at the next meeting. Having secured pure nitrate of silver, of some reliable brand, our attention is next directed to procuring pure water. We shall use distilled water, which has been secured, in your presence, by means of one of the very convenient little stills advertised in this Journal, by Wilson & Hood, and one of the Scovill Manufacturing Company's stoves. This arrangement is so cheap, so easy to manage, and so productive



of good results, that we desire that every one of you should have one, and habitually use it. Having, then, good silver and pure water, we proceed to make our bath, viz.:

Water,	. . . . .	36 ounces.
Nitrate of Silver,	. . . . .	3 " (Troy).

After the silver is dissolved, add 6 grains of iodide of potassium, which is equal to 2 grains to the ounce of silver, a proportion to be observed in making a larger bath. The iodide of potassium is first dissolved in a few drops of distilled water, and then added to the silver solution. This, you observe, causes a precipitate to be formed, the iodine mingling with the solution, and the potassium precipitating to the bottom. Now, this solution is filtered and made slightly acid, by adding a few drops of chemically pure nitric acid. You may produce the same effect by using glacial acetic acid, but nitric acid is the most stable and the best. In any case, add the acid drop by drop, until it turns blue litmus slowly red. Our bath is now ready for the bath-holder, and to receive the coated plate. Covering it over carefully, let us now make our collodion. Here is where a great many of you meet with trouble, but it should not be so, if you are careful. You can just as easily make your own collodion as to use that made by others:

Ether,	. . . . .	5 ounces.
Alcohol,	. . . . .	5 "
Iodide of Ammonium,	. . . . .	50 grains.
Bromide of Potassium,	. . . . .	20 "

Or, if more desirable, use bromide of cadmium instead of potassium. The cadmium improves the keeping qualities, but makes it necessary to prepare the collodion two or three days before using. By using potassium, we are enabled to use the collodion a few hours after mixing, and, as we desire to experiment at once, we use it. Having all these ingredients properly weighed, we put the alcohol in a bottle, and then add the iodide. After the latter is dissolved, add the ether. The potassium, not being freely soluble in alcohol, we will dissolve in a few drops of water, and add it to the other. It at once forms a precipitate, the bromide en-

tering the collodion, and the base falling to the bottom. This we now carefully filter through filtering paper, then add 60 grains of gun-cotton thereto, and our collodion is made, but before using, we shall filter it through a tuft of clean cotton.

Before coating a plate, be careful that it is well cleaned and dried. This is very important, for many troubles arise from want of care in this direction. You are all acquainted with the best methods of doing this, and I need not repeat them here. I shall merely mix the solutions for you, and then leave you to experiment, and report at our next meeting. Do not be in too great haste to dip the plate into the bath. The corner from which the collodion flows off the plate, should be just dry enough to leave the impression of the finger, without raising the film. The dipping should be slow and gradual, taking care not to stop the plate until it is all the way down. Leave it in the bath until it looks smooth, and free from greasy lines, when it will be ready for exposure.

For developer, have a stock-bottle solution of water, 64 ounces and protosulphate of iron, 4 ounces. Of this take 14 ounces (fluid), and add thereto 2 ounces of acetic acid, drawing upon the stock-bottle as you may have need for more.

You now have before you the solutions necessary for making good negatives. I desire that you should each make and experiment with like preparations, and report together at our next meeting. Do the best you can with the formulæ given. If you attempt to doctor or vary them, you will lead us into confusion. Try them as they are, and any trouble that may occur, make a note of and report.\*

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\* We desire that all of our readers who feel interested should make themselves members of our imaginary class, and experiment with us, reporting any trouble they may have with the simple processes we give. We will answer them as members of an actual class. We shall not pretend to claim originality for all we publish in these papers (which we propose to continue for some time), or to publish only what is fresh and new. Our desire is to try to awaken the careless, restore the backslidden, encourage the faith-

## ON THE CAUSES OF THE FADING OF SILVER PRINTS.

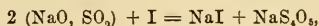
BY M. CAREY LEA.

I PUBLISHED, not long since, the results of a careful and prolonged examination, upon the subject of the fading of silver prints, considered from its practical side, and now propose to say a few words on the theoretical.

I have never been disposed to accept the view which has been long held by many, and has been ably argued by the French photographic chemists, that the fading of prints was caused by production of sulphide of silver, and I some time since published my reasons for this opinion, and the experiments which I made to support them. One argument is worth mentioning here, which I think, will commend itself to all: the sulphide of silver is almost the blackest of all the silver compounds; how then, shall its production account for *fading*, when all its characteristics are the reverse of what we should look for in a source of such diminution of color? Moreover, it is a very stable substance, resisting, as I have elsewhere shown, the action of reagents which destroy all but the very best silver pictures. It is, in fact, in every way, a very stable substance, and was selected as such by the able Belgian chemist, M. Stas, as one of the subjects of his late admirable examinations on the atomic weights of the elementary bodies.

To find the real source of the difficulty, we must, I think, go further, which I think lies probably in the formation of *trithionic acid*.

When hyposulphite of soda is acted upon by iodine, iodide of sodium and tetrathionate of soda are formed by one atom of iodine acting upon two atoms of hyposulphite of soda,



ful, earnest photographer in his work, and to benefit all who are willing to learn. Our classroom is large, and will accommodate any number, so all are welcome. We are even willing to admit a few who may only come to find fault, provided they will not make a dust, and spoil our manipulations.—Ed.

and this is the usual way of preparing tetrathionic acid, and that which I have myself employed. But if, instead of iodine, we employ the iodide, or the chloride of a base, it is evident that there is an *excess of base present*.

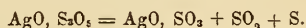
Now Kessler has shown\* that tetrathionic acid, in the presence of a base, has a tendency to resolve itself into trithionic acid and sulphur. This is the reason that old baths tend to let fall black deposits. If we shake up hyposulphite of soda with as much chloride of lead, for example, as it will dissolve, it will soon begin to let fall a black precipitate of sulphide of lead, and the same thing takes place visibly in old baths, and probably the decomposition in question commences with the first immersion of a print on chloride of silver, in even a new bath of hyposulphite of soda.

So, then, there is every reason to suppose that the regular decomposition of hyposulphite of soda must lead to the formation, not only of tetrathionic acid, but also of trithionic.

Now, the characteristic property of trithionic acid is, that it gradually passes into sulphur, sulphuric acid, and *sulphurous acid*, and here we have the probable cause of the destruction of the picture. Sulphurous acid is one of the most powerful bleaching agents known, and we can readily ascribe to it the power of destroying a print, a power which we cannot grant to the simple production of sulphide of silver.

The production of sulphurous acid in this way, would probably be very slow, for, unstable as trithionic acid is, it becomes materially more permanent when united with a base.

If, then, we suppose that, under favorable circumstances, trithionate of silver is formed in the body of the print, its slow decomposition would be accompanied by the production of sulphate of silver, and the elimination of sulphur and of free sulphurous acid, in a condition to do mischief. The decomposition I speak of, is chemically expressed as follows:



\* Gmelin Hdbk. Cav. Ed. II, 165.

One argument, which tends strongly to corroborate this view, is the following: It has been shown by Pelouze, that if we take tetrathionate of potash in solution, and simply boil it, it undergoes precisely this decomposition, that is, sulphate of potash is produced, and sulphurous acid and sulphur are set free. Silver is not so strong a base as potash, and in the present case, this (by reason of its inferior attraction for sulphuric acid), would cause the decomposition to be a very gradual one.

All the circumstances, then, correspond so well with what we should look for, that this view commends itself, I think, more favorably than any other that has been presented.

In view of the foregoing, and of our general knowledge of the subject, I have been led to inquire whether no substance could be found that might be placed in the hyposulphite bath, and without acting upon it, destroy, by oxidation, the tetrathionic acid as fast as formed? Evidently, such a reagent would be invaluable; it would terminate the difficulty, and keep the fixing bath always in its right condition. Unfortunately, I fear such a substance does not exist. These tetrathionates and trithionates, although in many respects, and especially in those which concern our photographic operations, very unstable, are yet, in other respects, quite permanent, and show considerable resistance to oxidants. Chloric acid, for example, will not decompose trithionate of potash (Pelouze). Nor will perchloric acid or hydrochloric acid decompose the free acid (Langlois). As these agents are stronger than any which we can venture to place in a fixing bath, it seems in vain to look in this direction for a remedy.

All, therefore, that we can gather, in the way of instruction from these considerations to the practical operations of photography, is a strong confirmation of the advice that has been already given so often, but which has never been acted upon as generally as it ought to be. And this is to remember that the hyposulphite bath is being rapidly decomposed as it is used. That every print thrown in, is filling it with the elements of fading and destruction. I

would, therefore, advise to use abundant baths, fix few pictures in them, and, above all, *never use a bath a second day*, no matter how few pictures were fixed in it. Time is an important element in this decomposition. A bath which has been used, is in a much worse condition when begun with next day, than when first left off the day preceding, because the substances employed have been gradually acting upon each other during the whole of the interval. To economize hyposulphite of soda, is the worst of parsimony, and if the prints are to be sold, it is doing great injustice to the purchaser, who, of course, trusts entirely, and must do so compulsorily, to the photographer who has produced them. How often this confidence is deceived, let any one judge, by examining albums of card-portraits, and noticing how large a proportion show indications of decay.

I am a good deal disposed to think, that perhaps too much stress is laid, at present, upon washing, and too little upon the necessity of the most liberal use of hyposulphite.

The true plan would consist, not in making large baths, and using them for a large quantity of work, if done all in one morning, but to make a liberal bath, and use it for fixing a sheet, or, at most, a very few sheets, then reject that, and have more fresh solution ready for the next part of the day's work. Nothing is to be lost by the use of plenty of this cheap substance. If a pound of hypo were used for fixing two or three sheets, it is probable that prints, so fixed, would, if properly washed, last indefinitely.

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## DRY PLATE PHOTOGRAPHY.

BY CHAS. WAGNER HULL.

BEFORE entering into any consideration of this kind of work, I beg to assure the reader that this more than "twice told tale," this re-hash of what I fear is an old, very old story, is at the request of the editor, and for it he is alone responsible.

The advantages to be derived from a good dry process are so many, and so self-evident, that a discussion of them would be a waste of time and space. The want of such is so great, that every number of every Journal



contains more or less on the subject. In my opinion, the dry process has but one trouble, which, I much fear, will never be overcome; that, is, its slowness compared with the "wet." It is often asserted that the "dry" lacks detail, is hard, wanting in harmony, &c. &c.; such is too often the case, indeed, it is generally the case, but it is almost always the fault of the photographer. He has either under-exposed, or has forgotten that he was working by a slow process; he cannot persuade himself to give six minutes when he would only have given one minute. To work any dry process with success, this must be done,—it is the key to the whole operation; pushing the development will not answer, it will only make matters worse, by increasing the contrasts.

It is now about seven years since dry work first became at all popular, and its first really popular teacher was Major Russell, with his Tannin process. About the same time, scientific and ingenious men introduced to us the wide-angle lenses; this, in one way, was, to dry-plate photography, a misfortune, for such lenses were slower than the older styles, and the result, as a natural consequence, was an almost universal objection to the "dry." If the reader does not object to a wagon-load of chemicals, tent, &c. &c., if he has the good luck to travel about the country without having things break and spill, and would prefer hard work to a light load and no chemicals, then let him stick to the "wet." After a long and varied experience with the "dry," I have fully satisfied myself that the Tannin is, in every way, the most reliable. It is not perfect. Some others are more rapid, and some are less troublesome in preparation, but they, however, have their drawbacks too. These, it is not now proposed to even mention; it was the writer's formulæ that were asked for, and not his theories or arguments.

After the plates have been cleansed, run around the edges a mixture of albumen and water, about equal parts, to which a few drops of ammonia have been added. This will keep for months, and keeps the film tight to the plate during the development, &c. To run this edging around the plate, requires some little practice and skill, yet it

is simple when understood. Take a piece of wood, say six inches long, one-quarter wide, and one-eighth thick; next cut a notch on one end, say one-quarter of an inch up, and one half of the width of the stick; you now have a little tool, which, if dipped into the albumen (the plate being held in the other hand on a pneumatic holder), and drawn around the edges of the plate, will leave an even line of the albumen, much better than can be done with a brush. When the albumen is dry, which will be in a very few moments, flow with any good working collodion, and sensitize in your usual bath. A collodion of equal parts of alcohol and ether, with about  $4\frac{1}{2}$  grains of iodide of ammonium,  $1\frac{1}{2}$  grains of bromide of cadmium, and a silver bath of 40 to 45 grains, faintly acid with either acetic or nitric acid, will answer all requirements. On removal from the silver bath, wash the silver off the plate by laying it in a dish of good pure water (I use a dipping bath, as being more handy), while you coat and sensitize the second plate. You now take plate No. 1, and wash it *thoroughly*, either by passing it through a series of dishes, which is generally the case where water is scarce, or by holding it under the tap for a few moments. The most expeditious plan is to have a box made of wood, well coated with shellac varnish, into which a constant stream of water is flowing, and in this put the plates, by leaning them against the sides of the box. In this way, you make sure of perfect washing. The first washings, after removal from the silver-bath, are saved. Next put the plates in the following tannin solution, for about five minutes, finally put them away to dry, by standing on blotting-paper, or, better, use an ordinary draining rack, placed in a dark closet. When dry, which will be in a few hours, they are ready for exposure, and will keep under any kind of decent conditions, for years. The tannin solution is made as follows, and is best put into a dipping bath, such as silver is put in, and which must be kept only for this purpose:

Water,	.	.	.	.	16 ounces.
Tannin,	.	.	.	.	120 grains.
Alcohol,	.	.	.	.	4 ounces.

Dissolve the tannin in the water, and filter, and then add the alcohol. This will keep for months, if kept in a cool place. The alcohol prevents its becoming mouldy, and is otherwise of benefit. It can be used over and over again; the only thing to be done, is to keep it up in quantity sufficient to cover your plates, and, once in a while, if much used, add a little tannin. Its exact strength is a matter of no moment. It becomes a dark port wine color, and should be filtered before using, after having stood any length of time. It will be seen that plates can be prepared very quickly if properly arranged, as they follow each other from silver to tannin in regular order.

Enough has been said about exposure, nevertheless, I beg to say again, GIVE TIME. The developer is made up in the three following stock solutions:

#### No. 1.

Pyrogallic Acid, . . .	96 grains.
Alcohol, . . . . .	1 ounce.

#### No. 2.

Nitrate of Silver, . . .	40 grains.
Water, . . . . .	1 ounce.

#### No. 3.

Citric Acid, . . . . .	120 grains.
Water, . . . . .	1 ounce.

I prefer to keep the solutions 2 and 3 separate, as when long mixed, they precipitate and lose strength. For use, mix them in equal parts. Of No. 1, add half a drachm to one ounce of water; do not mix up any more of this than will be required for the day's wants. In developing, first wet the plate with good pure water, then flow over it, after it has drained off the water, the pyro solution. After allowing it to flow well over the plate for a moment or two, return it to the glass, and add a few drops (two or three) of the mixed silver and citric acid, and apply it again to the plate. The picture will soon appear. Watch closely; if it gives signs of over exposure, being red and solarized, add silver, to blacken and intensify; if slow in coming up, be slow in adding silver. Do not make your negatives too intense. The olive-brown tint

which they have, is far more effectual in stopping the light in the subsequent operation of printing, than one unaccustomed to pyrogallic development at first supposes. Much depends upon the development. Experience alone must be each one's teacher, for it is impossible to lay down any special or arbitrary rules. Wash off the pyro well, and fix in hypo. Should the plates have been badly washed in the preparation, they will often show brown stains around the edges after going into the tannin bath, which, on development, become intensely black. This is the most common trouble, but, when known, is easy to avoid.

Having received a series of very excellent 8 × 10 prints from "dry" negatives, from him, and, at the same time, two or three applications from our subscribers, for a "safe, reliable, and certain dry process," we applied to Mr. Hull (who is one of the earliest amateurs, and one of the most skillful), for the process by which he secured such excellent results as now lie before us, and he has most kindly responded. The uncertainties of the dry process have made us refrain from saying much about it in our pages, that we might not lead our readers into the paths of perplexity and trial, but these views of scenes in Central Park, New York, are so unusual for dry work, that we have concluded to admit its discussion more generally into our columns. There is an entire absence of that strong contrast of light and shade, usually found in this class of pictures. Their only fault is, as Mr. Hull frankly admits, a little lack of time here and there. If those who are tempted to try Mr. Hull's method of working meet with trouble, we have no doubt that he will gladly assist them if they will make known their wants through the *Photographer*.—ED.

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## THE GLACIERS.

BY REV. H. J. MORTON, D.D.

A PARTY of ladies and gentlemen started from Gundelwald, in the summer of 1865, bent on visiting, examining, and photographing the glaciers of the Oberland. The result of that tour lies before us in the

shape of a splendid volume,\* admirable as letter-press, and abundantly illustrated. The author of the work is H. B. George, M.A., F.R.G.S., editor of the *Alpine Journal*, and hence, to be regarded as fully up to the mark in all mountain marvels, while the photographer is Mr. Ernest Edwards, R.A., and therefore to be reckoned quite competent for the artistic arrangement or selection of subjects.

The work produced by this combination of skill is now presented to the public, and, after entering our protest against the exclusion, from most of the views, of human figures, which are such wonderful helps to guide us in our judgment of masses and distances, we give the volume a hearty approval. We would have wished the pictures larger, but full justice has been done to the glaciers, so far as photography or art can represent them.

But what are glaciers? The writer will offer a brief record of his first acquaintance with these wonders of nature, in the hope that the impression produced on his mind may help those who have not seen such objects, to comprehend, in some degree, their singularity and grandeur:

After toiling for two hours up the side of *Mt. Anvers*, which overhangs the valley of Chamouni, we suddenly came out on a crest of the hill, and saw, beneath us, a great stormy lake of ice lying in the basin of the rocky valley. Huge waves seemed tossed into a tumultuous mass, but all was motionless. The dead stillness that reigned in the midst of this apparent violent action, was very impressive. The ghostlike billows rear their crests in every form of wildest commotion, but they do not move. The surrounding rocks seem rent or rending into pieces, under the mighty energy of some hidden power, but they are motionless. The sunbeams blaze upon the glittering surfaces, the clouds hang down like the shrouds that wrap a corpse—but all is still—silent—dead! It looked like a great monster suddenly slain, and with all its ghastly wounds unclosed, lying buried in a majestic sepulchre, hewn out of the solid granite moun-

tains. When the moon hangs her lamp in the midst of this vast silent tomb, the effect is sublime and awful, and the chill air floating up from beneath, is like the breath of a charnel-house. The heart of the spectator stands still in his shivering body. This was the “*Mer de Glace*,” or sea of ice—a thing once seen, never to be forgotten. We made our way carefully down to the frozen sea, and scrambled with still greater caution over its wild but solid waves; on the crest of one we found a large gold chain, dropped by some previous party of explorers. Huge and awful-looking fissures yawned beneath us in every direction, and, looking down their crystal sides, we seemed to gaze into a fathomless abyss. Far up the valley there is an open space, which has, in some way, escaped the ice deluge, and maintaining a certain degree of verdure, amid the general frozen desolation, is called the Garden. But access to this ‘garden’ is only obtained with great toil, and no little danger.

This was our first visit to the glaciers, and nothing seen afterwards possessed so many aspects of grandeur, though all were impressive, and seemingly the results of the same mighty processes.

But what are these? The glacier is seemingly a frozen torrent, the waters caught and congealed in the very crisis of their wildest confusion. But it is certain, the torrent never did flow as a liquid mass, for it is now constantly moving slowly and majestically forward and downward, just as a torrent or river flows, and yet in apparently unchanged rigidity of ice masses. When the glacier becomes an ice-fall, it is not as that at Montmorenci, in Canada—a real torrent formed in its fall—a cascade at one season of the year, and a wall of ice at another. Nay, these wonderful ice-falls are, to all appearance, ever solid, and the cascades descend in rigid masses.

From the investigation of Professors Forbes and Tyndall, we gather, that the formation of glaciers in all their wonderful changes, is owing to three operations,—melting, pressure, and rigelation, as it is called, in freezing again, under peculiar circumstances.

Year by year snow-storms are depositing their huge loads of crystallized moisture on

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\* The Oberland and its Glaciers explored and illustrated with Ice Axe and Camera.



the summits of the mountains, and yet the mountains do not grow more lofty. They do not lift themselves up as might be supposed, into heights which must scale the heavens, but abide very much at the same elevations. The wild winds which sweep these heights, and whirl away the fallen snow in far-drifting clouds, might seem to explain this fact, and the avalanches which fall with thundering roar into the low-lying valleys, would be other agents to be appealed to in accounting for the phenomena. But the real causes of glacier formation, are those we have alluded to.

And first *melting*.—The sun has power potent enough to melt some of the falling snow, and the water thus formed penetrates the masses, and prepares them for further process—that of *pressure*. The enormous superincumbent masses press the air out of the snow, and “neve” beneath, and converts all into solid ice, causing it at the same time to move slowly forward and downward. In a paper, by M. Tresca, published in the “*Annales du Conservatoire Imperial des Arts et Metiers*,” it is shown that solid bodies, when a pressure sufficiently intense is exerted upon them, flow in a manner similar to that of liquids. Thus it is with the glaciers. The superincumbent weight forces the ice forward along the descending slopes of the valleys, and causes it to accommodate itself to the forms of the rocks on either side, just as the weight of the head-waters of a river would drive along the tide and make it turn into every little bend in the river’s banks. When, by this pressure, the ice is broken, as it constantly is, then comes in the further process of “*rigelation*.” That is, the moist pieces of the fractured ice-masses, which are now pressed together, freeze anew, and become perfectly solid.

We think our author’s explanation of *ice falls*, entirely unsatisfactory. The ice pressed forward, on reaching a precipice or rapid change of inclination in the slope of the valley, is pushed over the ledge; but, as the top moves faster than the bottom, the cake breaks on the upper, and not on the under surface, and so, by degrees, is let down gradually into the valley below. This is the theory! But why does it not

break all through when pushed fairly over the brink? “Because, as the top of the slice thus partially detached, is tilted forwards, the bottom of it will be pressed more violently than ever, against the ice behind, and so the slice, never totally divided from the remainder, is gradually pushed down the slope.” This might explain a gradual descent, such as the glacier presents in its general aspect, but it is not adequate to the phenomenon of a nearly perpendicular fall. For, whatever might be the pressure of the lower portions of the ice-mass, the weight which would break it half through on the edge, would perfect its rupture when the whole was pushed further from its line of support. But, as none of our recollections of glaciers, supply us with any instances of a perpendicular fall of any height, but only recall instances of gradual descents, we will not pretend to speak confidently on the subject. To the *gradual downward* march of an avalanche, along a surface where rocks and fallen snow, and the debris of the hill-sides would help to support and retard the advance of the dislocated masses, the above explanation is quite adequate.

The distribution of the “*moraines*,” or earth and stone streaks which mark the glaciers, is very satisfactory, and the prints give admirable illustrations of these phenomena. Precisely as in a river you sometimes see long streaks of scum and froth, and when two tides meet these lines, joining together and forming a new and enlarged line, so, on the surface of the glaciers, long streaks of stones and gravel mark the white surface of the ice, and, on the Ober Aletock glaciers, look like great iron rails, laid down on a winding road covered with snow, for some gigantic locomotive. One expects to see the monster turn a sharp curve, and come snorting from behind the base of the rocky mountain, and sweeping along with a train of cars loaded with avalanches.

Our limits will not allow us to speak of “ice caves,” “ice peaks,” and “crevasses,” and other wonders of the glaciers. Here they are ably discussed and admirably illustrated, and here we see another of the admirable results of photography, which is to enable the sitter at home, by his comfortable fireside, to explore all this region of

ribbed ice, and gaze upon the glories of Alpine scenery.

## TAKING THE BABY.

BY REV. A. A. E. TAYLOR.

A BABY is a very nice thing to have about the house, especially if it be a year or so old. I have observed that babies begin to grow much more attractive, particularly to fathers and outside friends, by the second season. What a pity the darling things have to be born "*so young*," if we may be allowed the expression. Poor innocents, they do not know what trouble they give before they learn to discern the distinction between day and night, and to know that the use of night is for sleep and rest.

But how attractive they grow as they begin to "toddle," and to make faces and gossip in Choctaw in their sober way, and hobble about from chair to chair, getting into everything where they are not wanted, but do not know it. Then they must be shown to everybody; as if nobody had ever seen a baby; as if everybody wasn't once a baby himself. Then they must have new dresses, and shoes, and hats, and all kinds of infantile vanities. Then, alas for you, ye gentle, patient race of photographers, mother's darling must have its picture taken, to preserve and show how it looked at this most unpromising time of life.

What anybody wants of a picture of a baby at this early age, I do not know. It doesn't look like anything much as yet. It wouldn't be pretty, except for the love of it. It doesn't do pretty things, considered in the abstract. When it grows older, it will never want to know that it ever looked like that photograph. Who wants to be reminded that he was once a pudding-faced little bundle of blankets and dresses that sucked its fingers, and woke its friends with its unreasonable howlings in the night season? We don't like to think that we were ever disagreeable, and helpless, and foolish. Bad enough to know that we are what we are, without being reminded of what we once were, before we were ourselves.

*First babies* are particularly precocious, and particularly difficult to handle and make

anything out of. And of all of them, these are the very ones we must have the pictures of, in the *best style*.

And then the picture itself must be "like the baby," which means that if you want to give satisfaction to the doating parent, you must introduce expression where there is not the faintest trace of any; you must make every little colorless hair on the round head show in the picture, where it don't show out of the picture; you must make a nose where there is only a little shapeless knob of flesh; you must bring out the light and shade where is only an indefinite blank; in short, you must *make* the face of a baby in a picture, and make it to suit, else the picture "don't look like the baby at all," and the keeper of it goes away dissatisfied and impatient, giving you your pains for your trouble, and not even thanks.

But now the baby is to have its picture taken. So nurse brings out all its Sunday finery, which is peculiarly obnoxious to the "little darling," because it is new and fits too tightly. The shoes don't feel well on the little feet, and the dress binds its body too closely; the hat is in the way on its head, the cloak keeps its little arms in, and its hands are hemmed up in the unseasonable gloves; upon the whole it is made as personally uncomfortable as a baby well can be. Human nature shows its traits at a very early age. Therefore the child does not retain its usual self-possession, but develops all its good and bad qualities while it is being "fixed." It grows restless and nervous, and battles to the best of its knowledge and ability against the impositions that are being practised upon it. It kicks, and throws out its arms, and frets, and everybody wonders why it won't be good. This unsubmitiveness makes those in charge fearful it will cry or will not be still at the gallery, and they are rendered impatient and uneasy too;—which makes a very happy party to go to the place of torture.

But the youngster must submit, and he is carried away forcibly to face the camera. Walking in the air, all wrapped up, after the opiate of a full dinner, is not conducive to wakefulness, or sprightliness at least. So the little gloves rub the eyes and the nose till they are red, and the fretting and dis-

like of the whole system of torture for appearance sake, reduces the victim to that extremity of desperation, at which a stranger to the mother would say it was rather cross and unpleasant.

The whole party are in a wonderfully peaceable frame of mind, by the time they reach the gallery, and the benevolent operator, with the welcome of delight expressed on every feature, (?) sees them in and bids them to a seat.

Why can't an operator drop everything upon the instant, and take the cherub in hand? Everybody and everything has to give way to it at home;—why not here? But there are, unfortunately, several persons in beforehand, and the infant subject must bide its time and take its turn.

If it happens to be a cheerful morning, with a fine air outside, there are more than one or two in waiting, so baby concludes to sing for their entertainment; and being as yet rather uncultivated in the musical way, save in the operatic, its protracted and determined efforts do not draw out many enthusiastic encores. Other and older faces lose their pleasant expression in the din of its melodies; and their pictures do not seem to suit, they not being in a happy frame, but laying the blame, of course, on the artist whose business it is to make such a picture as they want. If there happens to be one or two babies in waiting, by the time the turn of the last one comes there is a merry time indeed.

The sweet creatures entertain each other, and like the roosters crowing in the morning, because they hear the others crow, they join each other in the juvenile opera.

There is nothing in all this, of course, to try the patience of your Job of an artist. Babies are sometimes worse than boils! But he must be content to have his gallery turned into an hospital for infirm infants, afflicted with stormy lungs and tried tempers; and he must transform them into smiling cherubs on his magic plate.

The *first thing* is to get the baby quiet. If it don't choose to be utterly out of humor and give up in temper for the day, there is some hope. But hopeful or hopeless, the trial is to be made. How shall the hopeful be quieted? Here is a rattle, and the

bell, and the canary, and all the other fair but delusive allurements, by which its growing indignation may be appeased.

Happy the man who, with the help of the mother and the nurse, and a few interested friends who come to see how the thing is done, succeeds in a quarter of an hour in getting the clouds driven away, and a calm, even with a lingering remonstrance remaining on the countenance of the young and promising limb.

*Then how shall the baby sit?* There is everything in position, especially for a baby. Not that it would not look quite as well standing on its crown, or lying on a pillow, or with the back of its head in front; but you must make the most of what there is of it. Shall it sit alone on the chair, or shall nurse hold it and play with it; or shall mamma take it and play with it, while nurse claps her hands at it; or how?

We'll have to try it one way, and then if we don't succeed, we'll have to try another.

"Now please keep the baby still." But the baby has no more notion of being kept still just at this precise crisis, than the unruly villain whose picture the police desire for the "rogues' gallery." It wants the ribbon; it wants the bell in its mouth; it grabs at its mother's conciliatory nose; it would slide down on the floor; its face is distorted, and it don't like the moral persuasion of being held fast when its inclination is to be let go. It has a sort of instinct that they are trying to perpetrate some sort of injustice on it, to render it a mockery and a butt of ridicule, and it don't mean to submit in a quiet way if it can help itself, which it means to try. At length, the song of the canary, or the jingling of the bell prove too much for its obstinate nature, and with wonder on its face, it is still an instant, while the lens does its work. Happy mother! Happy operator!!

By and bye, you bring out the plate to see what manner of baby it is of. Its eyes are staring; its mouth, or the hole where its mouth is one day to be, is wide open, expressing astonishment, and its entire countenance is remarkably similar to a crayon from the pen of some noted artist, *done in his youth* on a porcelain slate. Sweet child, how it has been caricatured by the artist.



When it was so quiet and good, "after such a time as we had with it," why did he not make a good picture of it? But now we must try it again. It is reasonable to suppose, that after the third or fourth attempt, occupying the trifle of an hour or so, a picture is got out of the worn-out child, which "will do for the present, though we will come back and try it again some day."

In the meanwhile, two or three good customers, who might all have been taken in the last time, have come, and waited, and are gone; and the "blessed baby" has cost you a great deal more than it comes to; not to mention the annoyance and heavy drafts on your patient endurance. You wish they'd keep their babies at home till they get large enough to know how to behave themselves, just as they do about taking them to church.

And the picture itself is no fitting testimonial to your skill as an artist, or to the reputation of your gallery. For, of course, the child was all dressed in white, and having no color of its own to speak of, you might as well have tried to take a whited wall. But what can be done?

The mothers won't let you take *them* unless you will take the baby too. And the father will be told that you are not a "pleasant man," if you don't do your prettiest and show your sweetest disposition. So you smile on the rebellious scion of the house of Smith, whilst you wish it were in the orphan asylum, to say the least, where they don't have baby pictures taken, and patiently keep your temper in rein, and take advantage of every favorable moment to do your best for it. But what shall be done?

Shall you charge double for the babies, when, since they are so little, you ought to take them all at half-price, or for nothing? That would never do. Shall not a combination be formed in self-defence against them? That would be to out-herod Herod, and a thousand mother Rachels would be weeping and crying out in lamentation against you.

We think we have a plausible solution. Are there not in every city one or two artists who would be willing to sacrifice themselves, who might possibly be prevailed upon to sacrifice themselves for the good of the profession, as Curtius leaped full armed into

the chasm to save Rome? Might not they be induced to open galleries where children, and children only, should be taken? Might not they have nurseries attached, with a storehouse of playthings, and experienced nurses in attendance, where, in the midst of their play, the dear things might be "taken unawares," and made to look as natural as life? Could not other galleries do the older work, and refer all anxious parents to these houses of photographic refuge for the darlings? Would not this relieve the matter?

But the artists for this work must be patient men, persevering, enduring men, who will not be annoyed at little incidents, and who will be prepared to stand nearly anything. We had almost said they must be husbands and fathers, slightly "henpecked," as the ungenerous term goes, who are used to getting up of nights and walking the floor with the embodiment of animated colic of the first three months, while the weary mother takes her rest. Is not the problem solved? Will not some one undertake to introduce the plan?

Now we do not wish to be misunderstood in this matter. We have no "spite" against the race of infancy. Remembering our own "former days," we possess our souls in patience. We have a high respect for the yearlings and underlings, especially for those of all the parents whose eyes may alight on these pages. We do not wish to be considered as here expressing our own views. But we are merely speaking the hearts, as we are persuaded, of many poor, distressed, persecuted artists, to whom the babies' friends have taken a particular fancy, and whom we would advise, henceforth, not to "do their best" when the babies come to their rooms. We lift up a voice of earnest appeal to the public at large, and especially to fond mothers and admiring sisters, against this insane fancy for children's pictures, when it destroys the peace and content of many a suffering gentleman of the lens.

And we urge these afflicted ones to deliver themselves out of the house of bondage, by setting their faces as a flint against the increasing mania for baby pictures. Do not bow down to these images, nor serve them. Remonstrate, and devise ways and means, and in some way go free. Shall our

voice fall unheeded? Shall the public and the profession, alike hear in vain?

GEORGETOWN, D. C.

## REPORT OF THE COMMITTEE ON THE ZENTMAYER LENS.

TO THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA:

THE Committee appointed to examine and report upon the merits of a combination of lenses for photographic purposes, invented by Mr. Joseph Zentmayer, have the honor to present the following

### *Report.*

Your Committee have examined lenses of Mr. Zentmayer's construction, of focal lengths varying from three and a half up to twelve inches. They were compared with the Globe, the Fitz, and other view lenses.

The experiments made with instruments up to eight inches focal length, were conducted in a way to show distinctly the relative advantages of the different combinations.

The results obtained with the instruments of greater focal length than eight inches, were not such as to enable your Committee to speak with equal positiveness. They, therefore, reserve for a future day, their decision in regard to the working of the larger lenses.

The following conclusions refer exclusively to lenses whose focal length did not exceed eight inches.

Your Committee are of the opinion that, with diaphragms proportioned to the focal lengths, there is no appreciable difference in time of exposure, between the Zentmayer, the Globe, and the other lenses with which it was compared.

In depth of focus, the Zentmayer lens is considered, by your Committee, to be equal, if not superior, to the lenses which were brought into comparison.

The Zentmayer lens exceeded, by one-sixth, the angle given by the Globe. In definition also, it was superior.

In lightness, and the ability to alter the focus by a change in the combination of the

lenses, the Zentmayer instrument was incomparably superior to the others.

All of which is respectfully submitted.

ALEX. WILCOCKS,  
E. BORDA,  
J. W. HURN,  
EDW'D TILGHMAN,  
F. A. WENDEROTH,  
HUGH DAVIDS,

*Committee.*

PHILADELPHIA, January 2, 1866.

[We regret exceedingly that the committee appointed by the Photographic Society of Philadelphia, to examine and test the Zentmayer lens, should, after several months' trial, consultation, and deliberation, make such a meagre report upon it as this. After laying the matter over month after month, at each meeting reporting "progress," and a "desire to be continued," we had hoped for and expected something more definite and comprehensive than this. The details of a single trial are not given us. We know not what exposures were given; as to what sized plates were used; what subjects were chosen, or any of the points of interest of any of the trials. We are still in darkness. With all due respect to the able and talented committee, we are disappointed and dissatisfied, and believe we speak the feeling of most of our readers. Our expectations concerning this report, were, that it should not be a *comparative* one, but a full, detailed report *upon the merits of the new combination alone*, without comparison with, or reference to other lenses. In addition, we hoped for some little information as to the plates, time of exposure, time of day the exposures were made, stops, appearance of the negatives, actual width of angle of the combinations tried, &c., &c.; nor do they say one word about the coincidence of the two foci, while this is really the information most wanted abroad, it having been asserted that as the two lenses of the combination are made of the same kind of glass, theoretically the instrument cannot be achromatic. But, in these points, the public is not gratified. We have the conclusions of the committee, which we doubt not, are entirely correct, but none of the facts which led them to their conclusions.

We have, ourselves, had the opportunity of making but one real trial with the lens, kindly sent us by Mr. Zentmayer, which is hardly worth reporting, but would add, that it was a most satisfactory one. Our exposure was made at 3 p. m. Subject, White Bear Lake, Minnesota. Atmosphere very hazy. We used the  $\frac{1}{4}$  combi-

nation,  $7\frac{3}{4}$  inch focus by actual measurement, and 2d size stop. The exposure made, was 60 seconds. Size of plate,  $8 \times 10$ . Result, excellent detail; sharp to the very edges, in every respect; the distance excellent, and the detail almost all one could desire. The atmosphere was unfavorable to a fair trial of the *time* required for exposures, and it was too late for further trial. We hope, however, that some of our readers whom we know possess the Zentmayer lens, will give us their experience, and report upon their trials.—Ed.]

### THE FRENCH COLLODION FORMULÆ.

In our November number, we published a communication from Messrs. Cramer & Gross, St. Louis, Mo., together with an extract from Barresville & Davanne's "Chimie Photographique," by which it was endeavored to prove that bromide of potassium was used in collodion, as early as 1851. To make the evidence stronger, the attest and seal of the French Consul, at St. Louis, was attached to the document. Having faith in the earnest protestations of Messrs. Cramer & Gross, and using the Consular certificate as our defence, we yielded, and published as aforesaid, though still holding our own firm convictions that something was wrong somewhere. We could hardly believe, that, after the trouble, and labor, and research we had expended, in order to set our readers right on the odious "bromide patent," that we could be so easily proven to be in error. So firm were these convictions in the face of this almost conclusive evidence against the same, that we wrote to Messrs. Cramer & Gross, demanding an inspection of the book in question. We received it, and, at this writing, it is before us.

Upon a careful reading of it, we find that Messrs. Cramer & Gross, and the French Consul, were *wrong*, and that our convictions were correct, and not without foundation.

The title-page is, as represented, dated 1851, but on the page opposite to the title-page, is the following notice of copyright, signed by the publisher, Mallet Bachelier, which, translated, is, viz.: "The authors

and editors of this work, reserve to themselves the right of translation in all languages. In virtue of the laws, and decrees, and international treaties, they will prosecute all counterfeiting, &c., &c. The legal depot of this work has been made at Paris, in the course of the month of June, 1858, and all the formalities prescribed by the treaties, are filled," &c., &c.

On page xiv. of the "Introduction to the second edition," it reads, viz. (translated): "The unsuspected discovery of the Daguerreotype, especially having for interpreters Gay-Lussac, the peer of France, and deputy Thenard,\* &c. &c., as members of the Institute, necessarily awoke the attention of the whole world, and stimulated the zeal of savants."

On page xix. of the same, the author, in speaking of Taupenot, says: "A true savant and skilful photographer, was carried off from science and arts before being able to enjoy his success. Taupenot† has bequeathed to photography the ingenious process which bears his name."

On page 97 of the body of the work, we find, viz. (translated): "The idea of employing collodion in photography, goes back to 1851, at which date, M. Le Gray first indicated a collodion process to give rapidly developed images, by the use of the sulphate of the protoxide of iron." We could doubtless extract other items to convince any one that the book was not published in 1851. If it was, it would not certainly record the death of parties who died in 1856 and 1858. Neither would it say that "the idea of employing collodion goes back," &c., &c. The date on the title-page is an unaccountable error, and the French Consul and the rest of us, have been taken in by it. Hereafter, we would advise such gentlemen, holding prominent legal positions, to look a little further than the title-page, before testifying as to the date of publications. If the book had been published in 1851, the bromide patent would have been *teetotally* annulled and defeated. We

\* Louis Jaques Thenard, born 4th May, 1777, at Laupriere (Aube); died at Paris, June 21st, 1857.

† Died at Paris in 1856.



should not take the pains to make this explanation, were it not that we feel it to be our duty to set our readers right on this subject, and probably save them future trouble.

We must not close, however, without asserting our belief in the honesty of Messrs. Cramer & Gross in this matter. Seeing the title-page, they, with the Consul and others, have naturally jumped at the conclusion that the work was published in 1851. We, having frequent occasion to examine such things, have been taught by experience, not to trust to title-pages alone, and, looking further, unfortunately find what we have stated, to be the fact. Messrs. Cramer & Gross say, in their letter accompanying the book: "We have acted under the belief that we were right, and have no more interest in this matter than others. We have spent a good deal of time and trouble in it, not expecting any other compensation than the consciousness of having rendered our brother photographers good service. We had only seen the book once before, when we translated the article on page 100, and could not draw from it any other idea, than that it was published in 1851, as the title-page shows, and to which the French Consul certified, without hesitation. The book does not belong to us." We thank them for the loan of the book, and re-assert our belief that they were sincere from the beginning.

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### SWAN'S CARBON PROCESS,

#### Its Value and Mode of Working.

BY G. WHARTON SIMPSON.

(Continued from page 6.)

*Transferring.*—The print in the stage we have left it is in a certain degree complete, but it is inverted as regards right and left, and the whites are not pure or brilliant because of the color imparted by the coating of India-rubber. To make it perfect, it needs transferring. That is effected as follows: When the print is dry, it is treated with a solution of clear gelatine, containing a little sugar. The proportion may be one ounce of gelatine and half an ounce of sugar in ten ounces of water. The surface of the

print is evenly coated with this solution warm, and left to dry. A sheet of suitable paper is slightly moistened; it must have just sufficient water to wet its surface without leaving any flowing. This is placed in contact with the gelatinized surface of the print, a piece of felt blanket is placed on the whole, which is then run through the rolling press. It is then dried, under slight pressure, to prevent curling; and finally immersed for a minute in a strong solution of alum, then rinsed and hung up to dry.

When dry a tuft of cotton-wool is dipped in benzole, and the paper upon which the print was developed is moistened with the benzole. As soon as it is sufficiently permeated to soften the India-rubber it will appear transparent; a penknife is placed under the edge of the paper, which is then steadily pulled away, leaving the picture attached by means of insoluble gelatine to the paper on which it is mounted. It is now ready for mounting on a cardboard like any other print.

Briefly as I have detailed these operations, I fear that they will seem more prolix than they are in fact. The operations being entirely new, and in many respects without analogies in other photographic operations, it is necessary to state each step minutely. There are a variety of minor precautions and hints I should like to have mentioned, but they would extend this article, I fear, to an unreasonable length. I may say, in conclusion, I find that these prints may be colored, in oil, powder, or water colors, without difficulty and with good effect. ■

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### SARONY'S STUDIES AND DRAWINGS.

OUR readers all know *who* Mr. Sarony is, and quite a number of them enjoy his personal acquaintance.

Recently, we have received *substantial evidence of what* he is, in the way of some beautifully printed specimen photographs, and a cabinet size charcoal drawing of a little child. The *studies*, advertised and sold by Mr. Sarony, have been frequently commented upon in our pages. They are the perfection of photographic silver print-

ing, and show most graceful and artistic posing, elegant lighting, the wonderful advantages of *Sarony's Patent Rest and Posing Apparatus*, and the brilliancy of his albumen paper. The specimens now before us are equal to his best, and he furnishes the process for making such, *gratis* to all who buy his paper of him or of his agents. That every photographer should have some of his studies, *and study them*, we particularly desire, and, as far as our readers are concerned, they shall presently be gratified with a few. When they see them, they will, no doubt, take our advice, and purchase many more of them. Do not for a moment think you have no need of them, for you have, no matter how good an artist you are. You are not so good, but that you may be taught how to do better, and those most willing to learn, are generally most apt to succeed.

The cabinet portrait in charcoal, by Mr. Sarony, is a perfect gem of art, showing him to be quite as much at home, drawing pictures, as drawing positions, and plates from the bath.

His plan is, to select proper pieces of charcoal, form them to suit his purpose, and scratch away. The beautiful results he produces, are astonishing. Those who have enjoyed his hospitality at his rooms, have there seen specimens of this class of work. They are entirely different from what we are used to seeing in this country, and are very beautiful.

Mr. Sarony has received an invoice of his "rests" from England, and is delivering them to his subscribers. We hope soon to place ourselves within the fond embrace of one of them, and have its help in making our picture, after which, we shall probably describe the sensation. Meantime, get some of his studies. They cannot fail to improve you.

### NOVEL CHANGING APPARATUS FOR THE DRY PROCESS.

BY ROBERT STARK.

I MADE some dry plates, and, not having a changing-box, did not know what to do, but I find that I have an excellent substitute in a changing-bag. I wrap up my plates in

yellow paper, and keep the collodion side up, so that I know, by feeling, which is the sensitive side. I put a number in my pockets, and when I want to change a plate from the holder (dark slide), I put it into a bag, made as follows: it is so thick that it will not admit any light, is open at the top to admit the holder, and has two openings at the side, with India-rubber bands sewed around to admit the hands. When I require to change a plate, I put the dark slide into the bag, and close the opening with a string; I then put my hands into the side holes (the India-rubber keeps the light from going in around the arms), and, opening the holder, take out the plate, and wrap it up in yellow paper, take it out of the bag, and put it in my pocket; I then put another plate, wrapped in yellow paper, into the bag, unwrap it, and put it into the holder, take both out of the bag, expose, put back again, wrap, &c. This plan is simple, *cheap*, and, as far as I know, as good as any.

### PHOTOGRAPHING UNDER DIFFICULTIES.

I WAS reminded, Mr. Editor, by an article in your journal, of an experience I had last summer, in the shape of a photographic attempt at the interior of a church, located some distance from the city. Having, a Sunday previous, reconnoitered the proposed scene of action, I came one day prepared to proceed at once to work, but was sadly disappointed on that point. The sexton positively refused admittance, referring me, however, to a church-member, who, he said, would make all right. To him I immediately repaired, and after some little time, succeeded in letting him know what I was after. At first, he was evidently somewhat puzzled how to get off without giving the desired permission, but, a happy thought striking him, I was forthwith requested to see the minister. Hastening to the parsonage, I was not long in finding the person to whom I had been directed. Stating my business in as few words as possible, I was subjected to an examination of some length: "What did I intend doing? my name, place of residence, &c.;" after which, he said: "I really

cannot take upon myself the responsibility of allowing you to photograph the interior of this church, but, if you like, I will give you a letter to the president of the board of trustees.'"

This new phase of affairs necessitated quite a walk, so that, heated and tired, I appeared before this aforesaid official, who, after reading the letter, looked gravely at me over his spectacles, and asked, in a most serious manner: "Will it hurt the church?" Having quieted his mind on that score, he informed me that he "really did not see any impropriety in allowing the attempt to be made," and consequently gave his consent, in the shape of letter number two, with which I immediately hurried back to the parsonage.

Hunting up my, by this time, disconsolate assistant, with feelings of awe as well as thankfulness, we were ushered through the portals of this mysterious edifice, and were soon at work, with the sexton mounting guard over us to see that we did not, what they were apparently so much afraid we would, "hurt the church."

#### AMATEUR.

If our amateur friend had only thought to have asked of those benighted individuals, the privilege of *taking a picture of the church*, they would have granted it at once. "*To photograph*," is hard to understand these times. It means a great deal, and means more and more every day. "Amateur's" story reminds us of an occasion when a congregational meeting was held, a long time ago, to consider the propriety of using a bass viol in the choir. Several of the dignitaries of the church argued in the affirmative very eloquently, but alas! for their *bass* designs, when the vote was taken the question was defeated. One of the disappointed remarked, rather passionately, that he could see no harm in having a *bass fiddle* in the church. When lo! a mighty change was wrought, the question reconsidered, and all voted for it.

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KEEP your dark-room as free from dust as possible. Never *sweep* it out. Always wipe it with a damp cloth.

### A NEW MATERIAL FOR MOUNTING.

BY JOHN SPILLER.

DURING the past year we have employed in the mounting of photographs an adhesive material of peculiar merit, which, so far as I am aware, has not hitherto been applied to such purposes. The use of thin glue is common enough, and so also is that of gum-water; each has its special advantages, but a mixture of the two proves to be better than either. Equal weights of "imperial glue" and gum arabic are separately immersed in cold water. The first swells up by absorbing its own bulk or more of water, the latter dissolves altogether; the soddened glue is then transferred to a glue-pot, melted by the application of heat, and, when perfectly liquefied, the gum-water is added; the whole is well mixed by stirring, and then strained through fine muslin, to separate the woody particles and other impurities.

In the operation of mounting, this material or compound is warmed in a glue-pot, and applied with a brush to the back of the photograph. A thin, even coating is sufficient, and the print need not be hurried through the rolling-press, since the interval which may elapse before the setting, is much longer than with plain glue. Other important advantages are the paler color and greater solubility of the mixture, so that if, by chance, an excess of the material is applied, that portion which makes its escape around the edges of the print can be instantly removed, by cotton-wool slightly moistened, without staining the card margin.

We have had great experience, both in the use of gum and glue separately, but their employment in admixture—due to the suggestion of our mounting assistant—is, we venture to think, a decided improvement. The consistence may be modified within somewhat wide limits, and, by altering the relative proportions of the ingredients, almost any desired quality may be secured.—*News.*

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KEEP your prints from freezing in the washing tank.



## ON RETOUCHED NEGATIVES.

BY PROF. OGDEN N. ROOD, OF COLUMBIA COLLEGE.

In photographing a landscape the pencils of light from the various objects are received on the lens of the camera, and there refracted, so that an image reduced in size, is formed on the ground glass. This image though not in all respects a perfectly accurate delineation of the landscape, yet approximates to this requirement in a high degree, so that no painter could be found who would for an instant undertake to compete with it in the matter of accurate detail. On the contrary, painters at the best undertake only to reproduce on the canvas a limited number of the appearances presented by nature, and in addition each painter limits himself still farther, by only attempting to reproduce these few aspects as they appear to *him*; which is equivalent to saying, that being more forcibly struck by some of the elements which make up these aspects, these particular elements are dwelt upon and enforced, to the partial or total exclusion of others, which perhaps may be less, or may be equally important.

"I paint trees as I see them," said a very talented young artist to me the other day, as I was looking over the edges of a pile of sketches weighing some twenty pounds, which he had thrown on the floor for my inspection, and over which he carelessly walked forwards and backwards, as though they were a new carpet, which he was testing. "Other artists," he continued, "see them differently, and paint them differently, but I can only paint them as I see them."

This is right; it is all that can be demanded, and it will be a happy day for art when all artists try to paint trees as they individually see them, instead of, as is too often now the case, merely attempting to get them on the canvas in the easiest way, or, giving up the struggle altogether, to put something on the canvas which may be mistaken for a tree, by those who have never looked at nature with any degree of affectionate attention. This, if you please, narrow individuality, must then always to a considerable extent characterize the work of the painter, for, however by study he may become familiar with new elements

that make up the character of the objects delineated, still at the best being only human, the introduction of these new elements can, in great part, be effected only by a process of substitution, and the good general effects of the veteran artist are not attained without the loss of many of the minute, often hard, details, which exercised and developed the strength of the tyro. Let us suppose that one of us should undertake, solely by the help of a large series of paintings of the same scene by different artists, to give to the inhabitant of another planet, a minute and accurate conception of a certain landscape; the paintings then represent so many notes taken from nature by so many men; each comes with his contribution, large or small, and by the combination of all we hope our mysterious visitor (angel or devil), will gain the desired information.

Why, would it not be a much shorter process, merely to exhibit a *photograph* of the scene in question, and to rely on its microscopic accuracy for the preservation of all the facts, except those of color?

And here comes the old question: why is it that in many respects the unerring camera is surpassed by the blundering pencil of the painter, in the power to convey ideas of the aspects of nature? This is a question too important and too complex to be answered in an article like the present, and I pass it by, merely remarking that even photographers seem at last to begin to arrive at the conclusion, that sun painting, delicate and microscopic as it may be, still in many respects cannot compete with the far coarser work of human hands; otherwise whence this desire to retouch prints, to retouch entire negatives with the lead-pencil or with India-ink?

It is the dream, I think, of many photographers, that by careful selections of positions, by patient watching for the moments when the illumination is most favorable, and by attention to other circumstances affecting the appearance of landscapes, as well as by improved chemical processes, by composition-printing, and finally by retouching, one day photographs will be produced,

which shall rival the work of those who depend only on their *own eyes* and brushes.

While I think it could be shown that this photographic millennium is in the nature of things impossible, still all such efforts more or less tend to advance the photographic art, and sometimes to cultivate the taste of its patrons, so these aspirations will not be altogether unfruitful. Now, although it seems very evident to me, that the camera will never be able to produce work, which in any *high or true sense* can be considered artistic, still I think it quite possible that the general effect of its work may often be improved by the process of retouching. This leads us to examine a few of the modes in which the camera often fails to convey correct impressions of landscapes, &c. One of the most important of these is a confusion of the relative distances of the objects depicted. It will frequently happen that objects situated many feet, or even hundreds of feet apart, are made in the photograph to seem to lie in the same plane, so that the result may be totally false. When the actual scene is before us, binocular vision and motion prevent, for the most part, the formation of false conceptions of this character, and the painter knows how to overcome this difficulty in his pictures, but the photographer is pretty much at the mercy of his wilful untamed sunbeams. A year or two ago I was shown a photograph of the spot where I had resided while in Rome, which I actually failed to recognize, from this cause; the most important object in it had, in this capricious way, been moved some three hundred feet nearer the houses in the foreground than it belonged, thus entirely changing the appearance of the street. Against this most serious difficulty, the process of retouching the negative can sometimes be used with more or less success.

Another capital defect, or even deformity, which can in the same way be to some extent helped, is an improper depth of shade. In a landscape the brightest light, except the sun, will be the clouds that are near it, while the darkest point will be the shade under some dark object. There are several hundred gradations or measurable steps between these two extremes. On the other hand, in a paper print the highest light can

only be the white of the paper, and the darkest shade only the deepest tint of the reduced silver, and between these two there is included only a small fractional portion of the gradations actually presented by nature. The painter must contend with the same difficulty, and knowing the poverty of the means at his disposal, he sets himself cunningly to make the most of them, and for nature's scale he substitutes a scale of his own, which enables him to get clear of this embarrassment with a fair degree of credit. But the unthinking camera being scientific rather than artistic in its tendencies, undertakes to run a race with nature on her own terms, with what result we all too well know. In the case of paper prints the failure is lamentable; with transparent glass positives the result is better, and it would be very interesting to examine the question, whether under favorable circumstances, say in a cloudy day, the iodized plate could grasp all the gradations present in a landscape. If it were found possible to produce truly graduated negatives, they would be fit for producing positive prints on glass, but to prepare them to give very moderate results on paper, the photographer would be obliged to modify the scale of the lights and shades, in some such way as the painter mentally alters those of nature. A mode in which this can sometimes, to a limited extent, be accomplished, will be indicated below.

Another trouble is unintelligibility of important objects in the foreground and middle distance. It is certainly not necessary for us to understand all that we see either in a landscape or in its photographic delineation, in order that we may enjoy the one or the other; still in nature a large portion of the objects viewed will be sufficiently defined, so that there need be no mistake as to their character. In photographs (not stereographs), just the contrary is too often the case; a considerable number of rather important objects in the paper prints being often so disposed, outlined, and shaded, that it becomes next to impossible to tell what they stand for. I have seen a photograph having in it a trunk of a fallen tree, that was mistaken for a stream of running water, while bushes, rocks, stumps, &c., in the hands of

the indiscriminating camera sometimes simulate each other as well as other things, in the most remarkable manner. Often a few touches skilfully applied would avoid the results of this undesirable species of magic.

And, finally, there remains to be noticed a want of general artistic effect. Judging from the strenuous efforts of many photographers, as well as from the mass of matter that is yearly written on this point, it would seem to be acknowledged by the profession that there is room for improvement in this direction. For my own part I must, however unwillingly, candidly confess, that I have rarely seen a photograph in which I could find anything like artistic effect, in a *high or true sense*, and when present at all, it had most generally resulted from accident. Believing that from the very nature of things, this matter must always remain much as at present, I lay no stress on the importance of the retouching process for this purpose. By altering the negative with the brush, then the light and shade of the print may also be varied, but this should not be attempted to any extent, except by a person who had studied nature, pencil in hand, for years; otherwise it will easily result that a photographically true and tame print becomes converted into a false and vulgar one. At the best, then, these modifications of light and shade, when effected by an educated hand, may serve to render rather more attractive to the general public the work of the photographer, while if judiciously managed, the alterations may not do much damage to the true character of the photograph. I suppose that work of this kind will not be much attempted, except by the more advanced class of photographers; it will meet with any degree of true success only in the hands of those who have made several hundred careful drawings from nature, using far other materials than silver and gun-cotton. The reason is obvious: the person who undertakes to modify the appearance of a landscape ought to know something about the appearances of landscapes, and this knowledge can only be obtained by studying nature in detail, and the only mode that has yet been discovered of effecting this study, is by incessant work

with the pencil and brush out of doors. I know that many landscape photographers imagine themselves familiar with the appearances of nature, because they make occasional excursions into the country, and look frequently at the prints from their negatives. As this is a delusion which can only be effectually removed by the actual study of nature, it is not worth while to dwell more on it here.

Next, a few words with regard to the mode in which the retouching is to be effected.

1. It is evident that by the application of a partially opaque pigment to a *negative*, different portions of it may be made denser, so that in the finished print the portions touched will appear lighter than before. We have therefore

(a) The power of rendering less dense and dark any particular portion of the print.

(b) Of introducing in the print bright sparkling lights when desirable.

(c) Of rendering lighter and fainter any of the great divisions of the landscape.

2. Next, by the use of a needle on the negative, small sharp shades can be introduced at will, but nothing very extensive of this kind ought to be attempted.

The plan for retouching which I projected some four years ago, however, embraces one or two more processes, which render the operation far more complete and manageable.

3. The negative having been thus broadly operated upon, is now to be copied on glass of its natural size, or if small, of an enlarged size, by the ordinary wet process. We now have a picture with the lights and shades in their natural relation, and it can be retouched to any extent in the sense of adding shades or small lights; also it will not be difficult for *an artist* to render intelligible portions which are confused.

4. From this improved glass positive any number of negatives can then be made, and in an elaborate piece of work it will again be found advantageous to do here also some retouching.

These three processes render possible a



very considerable degree of alteration, as will at once be apparent to photographers.

A portion of the color used will be in broad masses, applied to either side of the glass plate; besides which, there will be a good deal of fine work with the point of the brush.

In conclusion, I would remark that there is one legitimate and important use to which this process could be applied with a fair chance of success, viz., to the publication by photography of original drawings by some of our best painters. The substitution of a photographic negative for an engraved plate could probably be best effected in the following way: The artist first prepares a sepia drawing of his subject, in which all the main masses of light and shade are well made out, the details being omitted; from this a negative is taken, which will be broadly retouched chiefly for the purpose of getting the right degree of intensity, &c. A glass positive is now produced, and on this the main work of the artist is to be expended. After the design has thus been elaborately completed, a negative is taken, then a trial print: this final negative will then be broadly retouched to perfect its printing qualities. As a considerable number of negatives could be produced a large and *uniform* edition of prints would be practicable.

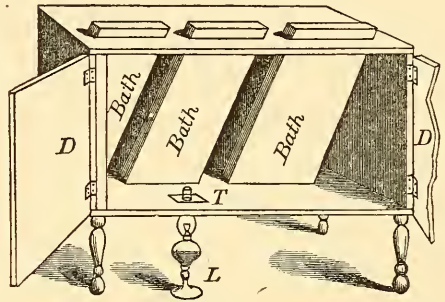
At present generally the work of artists is translated by the engraver in his own language, so that except in rare cases, much of the freshness and individuality is lost, while here on the other hand we should be able to recognize the actual manipulations of each painter. It is evident that the plates could be produced cheaper than an engraving, and I suppose that prints of sufficient permanence could be obtained.

NEW YORK, January 18, 1867.

### A USEFUL BATH-WARMER.

It is a source of great trouble to photographers, during cold weather, to keep their solutions warm enough to work satisfactorily. With many, it is almost impossible, while they have the bath-holders, &c., arranged as they are. The arrangement de-

scribed and illustrated below, will serve a most excellent purpose in this direction. By it the baths are not only protected from accident, but a constant gentle warmth is secured at a very moderate outlay of trouble and coal oil. Developing and fixing solutions may be kept alike warm, so that no matter how cold the room, all things are in good working order, as far as temperature is concerned, as soon as the doors are opened in the morning. In the summer time, a dish of ice, instead of a lamp, will keep all cool.



The apparatus may be cheaply and easily made, consisting only of a wooden box on feet, with folding doors, a support for the bath-holders, and a cover. L is a coal-oil lamp, placed under the box, the chimney running up through a piece of iron or tin, at T. D D are the doors. When the latter are closed, a very small flame will create an amount of heat quite sufficient for the desired purpose. The box should be made of light wood, and of a size to suit the requirements of the operant.

A drawing of it has been kindly furnished us by Mr. E. Long, Quincy, Illinois, who says: "Having used it for the last four years of my photographic life, and found it, although so simple, of so much *real service*, I desire that the fraternity should have the benefit of it." Mr. Long adds that "it is *not patented*."

### LEPTOGRAPHIC PAPER.

WE have published two or three little paragraphs concerning Leptographic paper, but refrained from saying more or much about it, until we had seen with our own

eyes and felt with our own hands. Having now experienced these sensations, we will record all we know about it, and a little more.

A company has been formed in Paris, called the "Leptographic Society," who prepare a photograph paper, which they place in the market sensitized and ready for printing, and which they call Leptographic paper. It has appeared suddenly, without any announcement, like a great kite, in the photographic heavens, with a long tail of recommendations and advantages, which we shall presently state. It may fly high enough to break and scatter the clouds which now hang over photography, or it may be that some of the knots in the tail may have to be taken off, in order to make the thing go. Our brother Dawson, of the *British Journal*, seemed to take to it at once, and make it fly very high, but afterwards hauled it down to remove some of the tail, we believe. Mr. G. Wharton Simpson, of the *News*, was more cautious, believing, as we do, that it was a crib of his collodio-chloride process. No one has found out certainly what it is, but if it is *good*, we need not care what it is. Let the kite be paper or wood, if it will only fly we need not care for the rest.

Among the string of advantages claimed for it by the Society, are the following: It needs neither sensitizing or fuming. It is always ready for the printing frame. When dry, and not exposed to the light, it will keep indefinitely. Prints and tones quicker than albumen paper, and may be thoroughly washed in six minutes. It is as sensitive six months afterwards, as it is on the day it is prepared. It contains only neutral and inert materials; no nitrate of silver; and is not albumenized, but collodionized. How the latter is done, we have described in our *Salad*.

By the circular of the Society, we learn that five kinds of paper or cards are made, viz.:

- No. 1. Porcelain Glacé.
- No. 2. Thin Brilliant.
- No. 3. Thin Mat.
- No. 4. Thin Porcelain Card.
- No. 5. Thick Porcelain Card.

The first three are used as albumen paper,

and need mounting on cards. The others are of the thickness of Bristol board, and do not require to be mounted. As we have said before, the sheets must be handled only in yellow light (except when exposed for printing, of course), and kept well pressed down, and dry.

Now, as we see by our advertising columns, that this paper is already for sale in this country, and, as many will be curious to try it, we will give them the directions we have received for working the paper. We hope that all who try it will not grow impatient at the first failure. The thing is a step in the right direction, and is well worthy of a fair test. We shall be glad to hear from any who may try it.

Tear your sheet to proper size, then see that it is perfectly dry, and, placing it in the printing frame, expose under the negative to sunlight. It will be found that the best prints are obtained from negatives of moderate intensity, *i. e.*, neither too weak or too strong. Print the positives rather stronger than it is desired they should be when toned, especially with the thinner papers, No. 2 and No. 3.

In toning and fixing, it will be found that 2 and 3 will tone much more rapidly than 4 and 5. Any ordinary toning bath will answer pretty well, and any gradation of tone may be secured, from a light sepia to a blue black, according to the time the proofs remain in the solution. They may be toned and fixed at the same time, if desirable, thus saving one operation, which is *always* desirable.

The following are the methods recommended by the Society, as being in use abroad:

*First Method.*—For a litre (which is very nearly equivalent to our quart), take:

Water (31 grammes to the oz.),	. 900 gram.
Hypo. Soda,	. . . . 25 "
Chloride of Potassium,	. . . . 30 "
" Gold,	. . . . 1 "

The gramme of chloride of gold is first dissolved in 100 grammes of water, and poured, drop by drop, into the other mixture, stirring with a glass rod. Leave the prints in the solution about 15 minutes, and wash as directed below.

*Second Method.*—For the same quantity as above :

Water,	.	.	.	900 grammes.
Phosphate of Soda,	.	.	.	2.50 "
Chloride of Sodium,	.	.	.	1.50 "
" Gold,	.	.	.	0.25 "

The gold is dissolved, and added as above. This bath may be used continually, and strengthened, as it becomes weak, with fresh solution. When new, it is very active, but a few minutes being required to tone. Should it be too active, dilute with water. Before placing the prints in this solution, they should be washed a few moments in fresh water, and, after toning, again washed, and then placed for half a minute only in the following fixing solution :

Water,	.	.	.	2000 grammes.
Hypo,	.	.	.	100 "

A careful washing, as directed below, will terminate the process.

*Third Method.*—Without previously washing, plunge the prints in a solution of

Water,	.	.	.	1000 grammes.
Hypo,	.	.	.	100 "

They acquire an olive-yellow tone, when they are removed and placed in a second solution, same as the other, with the addition of chloride of gold, 1 gramme. Tone from six to ten minutes. The proofs grow darker as they dry.

*Fourth Method.*—Prepare a solution of chloride of lime in 100 grammes of water. Decant the liquid, and pour 25 grammes into a solution of 5 grammes of acetate of soda in 800 grammes of water. Then add 20 centigrammes (one-fifth of a gramme), of chloride of gold, dissolved in 100 grammes of water. Wash the prints before toning and fixing; tone, wash, and fix, and again wash, as in the second method. Beautiful blue-blacks are obtained in this way.

*Fifth Method.*—The proofs are plunged in a bath of water of 1000 grammes, and sulphocyanide of ammonium, 100 grammes. They assume a canary-yellow color, and are then washed, and afterwards toned in a bath of water of 1000 grammes, and half a gramme of chloride of gold, to which a

small piece of caustic potash has been added. After this, pass the proofs through a second bath of sulphocyanide of ammonium, and then wash as directed below. This sulphocyanide of ammonium bath is very durable, and may be used repeatedly; it gives the most charming tones.

*Washing and Drying.*—As the proofs remain but a short time in the fixing solutions, three or four immersions in clear running water is all the washing required. No traces of hypo will be found, as may be discovered by the usual tests. Washing in cold water is preferred, and the proofs should be kept back up, so as not to be struck by the falling water on the film or face.

The proofs should be perfectly dried, rolled, and rubbed with a mixture of—

Essence of Turpentine,	.	.	.	40 grammes.
White Wax,	.	.	.	60 "
Essence of Lavender,	.	.	.	20 "

The best material for mounting the proofs is a paste made of starch, whipped or beaten with a glass rod, which makes it very fine, white, and free from stain. Tissue paper, kept between the proofs, is recommended.

Should our readers meet with success, we will give them some further information. Our own experiments with the paper have been very limited, samples having been handed us but a short time previous to writing this paper. As far as we have gone, we are not prepared to indorse all the claims made for it. Samples of papers 1, 2, 3, and 4, were printed, toned six minutes in an ordinary gold and acetate of soda solution, washed six minutes, and fixed, in the same length of time, in hyposulphite of soda.

Some very curious antics were displayed by the paper in the toning solution. At first, it curled up tight, as quickly as a sensitive flower does when touched. Getting it spread out again and immersed, the whole surface became wine-colored or red, causing an assistant to run frightened and alarmed, for directions.

Paper No. 1 gave a print in no way remarkable, lacking detail and purity, and not much gloss.

No. 2 was much the same in appearance,



with greater brilliancy and much more gloss. Bluish-gray tone.

No. 3 gave great improvement in detail, and was much more glossy and heavier than the others. The tone is a light sepia. The surface resembles that of an enamelled card; crackles with bending, and is covered with white specks, which we cannot account for.

No. 4 gave a very fine print; dark sepia tone; a very brilliant, glossy surface; film free from spots, but crackles badly, and peels off readily. All of these troubles may be caused by our hasty and imperfect manipulation. If we can get a paper that will save the expense of using nitrate of silver, and decrease manipulation, we should be glad, and willing to try the experiment. A few drops of silver solution were placed on the backs of some of the prints, causing them to brown at once, showing conclusively the presence of hypo. Some whole-size prints that we saw, made by Mr. Gutekunst, were better than those we have described.

We trust that our readers will have enterprize enough to experiment with it, and let us hear of their results.

## PHOTOGRAPHIC SUMMARY.

BY M. CAREY LEA.

GERMANY.

FROM the last number of the *Photographische Correspondenz*, the following hints are gleaned:

*Retouching Negatives.* — The editor remarks, that further experience has led him to change his views somewhat on this subject, and that he prefers to retouch with crimson-lake water-color. That this color is not very opaque, as respects the light, and admits of being more easily shaded, than a more highly non-actinic one, whilst the difference of color makes it easy to distinguish between the original negative and the applied material, and of course, if the work has been overdone, it is easier to remove a water-color than one in oil. He urges, in all cases, to work with the aid of a reading-glass, as when the work is done with the unaided eye, it is not fine enough, and small lenses injure the eyes. (A good reading lens should be from four to five

inches diameter, and magnify two to three times, linear measurement.)

*Reproducing Negatives.* — When a photographer has a valuable negative, and desires to make another from it, Beyersdorf recommends to spread on a glass of the same size, a mixture of bichromate solution, gum, and honey, to expose under the negative, and, after exposure, to dust over with a pigment, which adheres to the unexposed parts, and forms a negative. This is to be washed with a mixture of alcohol and glacial acetic acid, which removes the bichromate without dissolving off the gum. Negatives obtained in this way are reversed, and give reversed positives, like ambrotypes. Such negatives are useful for photolithographic transfers.

Instead of dusting the exposed plate with pigment, enamel powder may be used, and the plate may then be burned in, and a negative of absolute permanence be obtained. (It seems doubtful if such a burned-in negative could have the fulness of detail of a collodion negative, from the tendency of colors to run a little when fused.)

## ENGLAND.

*Disordered Baths.* — The evidence in favor of using cyanide of potassium for rectifying disordered baths, seems to be on the increase. Some photographers state that no method of treatment gives such good results. The quantity added must be small, 5 or 10 grains only, in solution. The bath should be rendered alkaline first, and afterwards be well exposed to sun. Finally, acidulate as usual, with nitric acid, avoiding to have more than just sufficient to remove the alkalinity, and leave a trace of acid present.

*Preserving Wet Plates.* — The editors of the *British Journal* speak very favorably of the use of glycerine in keeping plates for some hours, and direct to proceed as follows:

Price's glycerine is to be mixed with a 15-grain solution of nitrate of silver, in the proportion of one ounce of the former to two of the latter. The wet plate, excited in precisely the usual way, is drenched with this mixture, which is returned to the stock-bottle through a filter. The plate, after

draining on blotting-paper for fifteen minutes, is ready for use. Such plates, prepared in the morning, may be exposed though the day, and developed at night—the exposure being, all else being equal, about double that for the ordinary plate. Plates prepared in the morning, may be taken out in dark slides, exposed when convenient, and developed after returning.

The following precautions are required: the mixture of glycerine and nitrate must be exposed four hours or more to the sun, shaken up with a little kaolin, and filtered, after which it shows little tendency to change. By use it becomes richer in silver, from mixing with the bath-solution on the plates, and if it becomes stronger than 15 grains to the ounce, the results are irregular. Therefore, prepare a solution of glycerine, 1 ounce; nitrate of silver, 10 grains; water, 2 ounces. Treat as before, and keep the working solution up to its original bulk, by additions of this weaker solution. (This last ought to be richer in glycerine, if the proportions of the stock-solution are to be kept up.) The filtering is best done through a tuft of cotton.

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## NEW YORK CORRESPONDENCE.

ANOTHER second Monday of the month has come and gone, and the Photographical Society of this *model* city—(model for much that is bad, and, I fear, little that is good)—met pursuant to adjournment—had a good time, and adjourned again. This fact is a summons to your correspondent to appear and inform you, and your readers, what was done. On all such occasions it is ever the rule to seize upon any one who wants to become a member and make him such while still in the humor; so acting upon this most ancient and wise custom, Mr. Eugene Hotchkiss, of Kankakee, Illinois, was proposed and elected as a corresponding member, with the hope that he will not forget to correspond to our advantage.

Mr. Newton, of the committee appointed at the last meeting to make comparative experiments with his weak silver bath, as

published by you,\* and a strong bath, made a long, highly interesting, and valuable report, and exhibited a large number of prints from each bath, so marked that the committee could recognize them.

To make a long story short, it is probably sufficient to state, that the committee unanimously agreed, that those from the weak bath, were just as good as those from the strong, and such was also the opinion of the Society. Mr. Mason, of the committee, was at first probably as much prejudiced against the weak bath as any one could be, but he was fully converted, and indeed became enthusiastic. It would require more space than I would dare ask for to give the report in detail, yet it will not be doing justice to so important a subject to pass it over without some reference to the facts arrived at by the committee.

All the paper used, of which there were four kinds, were fumed before printing. One sample could not be used on the strong bath, inasmuch as it was so lightly salted (4 grains), that the silver ran off in streaks, and dried in spots. To use such paper it was found necessary to either reduce the bath in strength or add freely of alcohol—therefore it was rejected.

The strong bath was made 100 grains of silver to the oz., and the paper was floated one minute. The weak bath was made 25 grains of silver to the oz., with the addition of the other ingredients, as published, and the paper was floated 3 minutes.

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\* As this subject will be considerably ventilated in our pages for some time, and as many of our present readers were not subscribers to our last volume, we repeat Mr. Newton's formula for weak silvering solution.

Mix in the following order :

Water, . . . . .	1 ounce.
Nitrate of magnesium, . . . . .	25 grains.
“ potassium, . . . . .	25 “
“ silver, . . . . .	25 “
Acetate of lead, . . . . .	5 “

After the above is well shaken, place the solution in the sun for three hours, then filter it, and it will be ready for use. Tungstate of soda is preferred to the acetate for the toning solution. Fume.

Some paper was silvered overnight. All that had been treated on the 100 gr. bath was, by morning, so discolored as to be unfit for use, while that from the weak bath was white and in good order,—a fact of value to all the craft during bad weather.

In printing, no difference in time was observed, one printing in practically the same time as the other. In toning, those from the weak bath were finished in one-third less time than the others.

In silvering 16 sheets of paper on the strong bath, 560 grains of silver were consumed.

In silvering the same number of sheets on the weak bath 212 grains were used. In conducting these experiments every drop of the solution was caught, and great care was taken not only to save the silver, but as well to make honest, correct, comparative tests. It is easily seen that if a saving of 348 grs. is made on 16 sheets of paper, that it amounts to over one ounce of nitrate of silver to a quire, and that such saving is no small item. There is no doubt but that upwards of 80 per cent. of the silver used can be readily saved in the washings, toning, and fixing baths, the only question being whether the photographers do make such saving? As a rule it was generally believed that they did not. If such is the case, then there is every reason why they should *make at least a trial* of this new bath.

Mr. Rutherford asked whether prints made on the weak bath were as permanent as those made on a strong one? To this no one could positively answer. Mr. Newton was of the opinion that they were. He had some which were made a year or more since, on a bath as weak as 5 grains of silver to the ounce, and as yet he saw no signs of fading. Mr. Thomas exhibited quite a number made on a 15 gr. bath, which, though not quite as brilliant as those made on the 25 gr. bath, were nevertheless most excellent.

Inasmuch as some of the prints were better than others, the inquiry was made as to which was the best paper, and how it was prepared.

Mr. Newton, of the committee, could not state how the paper was made. He stated that he had bought it of the Scovill Manufacturing Company, and that Mr. Hallen-

back, who was present, could inform the Society.

Mr. Hallenback said that all he knew of it was, that the paper furnished was called Pearl paper; that it was a new article, which had been approved by Mr. W. Irving Adams, after many trials, and was by his direction, furnished to the committee.

Considerable discussion followed as to the value of a substratum of albumen on all negative plates. As is ever the case, some thought it was just the right thing in the right place, and others thought just the contrary. Mr. Weeks asserted as a fact, that equal parts of albumen and water, with  $1\frac{1}{2}$  to 2 grains of iodide of potassium to the ounce, would reduce the time of exposure one-half, and save the trouble of cleaning the glass.

Professor Joy exhibited a series of views belonging to Dr. Torrey, which were made in Siam. They were more curious than excellent. Most of them were produced by the reigning monarch of that far-off land, and as they were of royal handiwork, they of course elicited great praise; indeed, so very enthusiastic was one member, that he was with difficulty prevented from nominating his dusky highness to honorary membership.

Mr. Hull read a paper from Professor Towler, on the Nitro-gelatine Developer. He proposed, for simplicity, the following "modification of the Collo-iron Developer first published by M. Carey Lea, M.D., to whom we are all so highly indebted for his photographic investigations."

#### STOCK SOLUTION OF NITRO-GELATINE.

Gelatine, . . . .	3 drachms.
Water, . . . .	1 ounce.
Nitric acid, . . . .	1 "

Keep this for use as required.

Next take one pound of the double sulphate of iron and ammonia, pulverize and divide into half-ounce powders, and put away in a tin box for future use.

#### FORMULA FOR DEVELOPER.

Double sulph. iron and amm.,	4 drachms.
Nitro-gelatine, . . . .	1 "
Alcohol, . . . .	1 "
Water, . . . .	6 ounces.

Dissolve and filter.



In summer a little more of the nitro-gelatine can be used. His hot-weather formula is as follows:

Double sulph. iron and amm.,	3 drachms.
Nitro-gelatine,	1 "
Alcohol, . . . . .	1 "
Water, . . . . .	4 ounces.

The double sulphate worked better than the plain sulphate. He had experimented with additions of sugar, honey, mannite, molasses, and several other substances, but could not observe any benefit derived therefrom. He considers the alcohol only necessary for large plates, or when the bath is old.

The Corresponding Secretary was directed to convey the thanks of the Society to Messrs. Benerman & Wilson for their kind and most acceptable donation of the Photographic Mosaics for 1867 (a truly model and most valuable production), also for the *Philadelphia Photographer* for 1867. One of the photographic cigar-holders you sent the writer (I don't know what else to call them) was used; but very few puffs of the odorous weed were given, ere from the smoke a photograph of General Sherman was seen to emerge—not the first time for him to be found amidst the thickest of the smoke.

Yours, &c., C. W. H.

New York, January 16, 1867.

## PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting of the Photographic Society was held on Wednesday evening, January 2d, 1867. In the absence of the President, Mr. Vice-President Tilghman assumed the chair.

Minutes of the last meeting were read and approved.

Dr. Alex. Wilcocks, Chairman, read the report of the Committee on the Zentmayer Lens, which will be found on another page. The report was accepted, and ordered to be entered on the minutes.

The Committee on Dry Plates reported progress, and asked to be continued.

Mr. H. P. Norris was elected a member of the Society.

The amendment to Article 3d, Section 2d, of the Constitution, was read as offered at the last meeting, and adopted.

A very fine photograph was exhibited, of the Philadelphia Bank Building, from an 8 × 10 negative, made by Mr. O. H. Willard, with a 7-inch focus Zentmayer Lens, 20 seconds' exposure.

On motion, adjourned.

## Salad for the Photographer.

LEPTOGRAPHIC PAPER is now being largely made at Paris. After careful selection, and a preliminary sizing, the sheets are hung up to dry. When perfectly dry, a workman bends up the four sides of each sheet, shapes them into the form of a shallow dish, and they are then ready to be collodionized. The sheet is then placed on a flat movable board (the sides of the paper dish being supported by slips of wood); the sensitized collodion is then poured into it, and made to run evenly all over the surface, the excess being poured off at one of the angles. The paper is again hung up and dried, and then passed through rollers, and trimmed. The windows of the manufactory are all fitted with yellow glass, and every part of

the process conducted with the utmost care. —*News.*

In using citric and pyrogallic acids for intensifying, a little judgment should be exercised. Much less of the former should be used during this cold weather, than when the temperature is greater. In the article on "Our Picture," will be found a formulæ for this method of intensifying, which, as we have suggested, must be modified according to the weather.

In Mr. Robert Benecke's grains of spice, contributed to our last bowl of salad, we neglected to discover two errors, which he points out to us, viz.: In grain "fourth," latter clause, it should read *sulphuret* in-

stead of "cyanide" of potassium. In grain "sixth," read 1 *drachm* of iodide of potassium, instead of 1 "ounce."

MR. JOS. VOYLE, Tuscaloosa, Alabama, says: "I have received so much valuable information through your Journal, that I intend to do what I can for it, and shall keep memoranda of any little things of interest that occur in my experience, and send them to you. In the first place, I am suffering greatly with a finger poisoned by cyanide. I only state this, as a caution to others.

"To keep my solutions warm during cold weather, I have a sheet-iron cone, about seven inches diameter at the top, five inches at the bottom, and eight inches high. At the bottom, three iron legs are riveted, and a piece of sheet-iron, perforated with  $\frac{1}{2}$  inch holes, is pushed down to the bottom to serve as a grate. With a small quantity of lighted charcoal in this arrangement, I can obtain heat enough to fuse my silver, boil my silver solutions, dry, coagulate, &c., at will. I keep it on a small dish, and can carry it about wherever I like.

"The papers on development, by Dr. M. Carey Lea, published by you in your edition of *Newman's Manual on Coloring*, have been of great profit to me. They entitle him to universal respect on such topics. I often have great trouble in taking pictures of children, and how to get a good negative in very short time, and with but a tolerable lens, is worth knowing. Cannot some of the friends of 'Salad' suggest a plan? My plan is to make a dish just the width of a half-size plate, and two inches longer; in this I put the exposed(?) plate close up to one end, then raising that end I pour iron solution sufficient to flow well over the plate, in the lower end, then, by quickly lowering the raised end, the plate is quickly and uniformly flooded with the developer. When the details appear, the iron is poured off, and the collo developer poured on, and allowed to remain until the best effect is gained."

The same correspondent says he is about to use India-rubber gloves to prevent trouble with cyanide. We hardly think they will be of much avail. We have not tried them

with cyanide, for we do not use it with our fingers, but, in making some magic photographs some time ago, we used them in the bichloride of mercury solution. We found the solution penetrated the gloves, made our fingers to swell and become quite sore. An assistant was still more unfortunate. His fingers and arms became badly swollen and sore, rendering him unable to attend to business for several days. Parties who use such solutions, should be very careful, and not trust *too much* to India-rubber gloves.

SOLAR PRINTING BY DEVELOPMENT.—Messrs. Willard & Co., New York, have sent us a very excellent solar camera print, made by the development process—a process which is very convenient in this season of weak light. They are now printing by it for the trade, with great success. Their specimens shown us are very excellent. We do not know their method, but the following will be found very effectual, and is extracted from the *News*. For salting the paper:

Bromide of Potassium,	. 7½ grains.
Chloride of Ammonium,	. 4½ "
Gelatine, . . . .	. 3 "
Water, . . . .	. 1 ounce.

A 50-grain silver-bath, with 1 minim of acetic acid in each ounce of solution. Expose wet, until a trace of an image is visible, then develop with a 4-grain solution of gallic acid. Take great care that no trace of actinic light reach the picture during the operations, except that passing through the negative to form the image.

If you desire to keep your negatives damp any time after immersion in the bath, while posing a troublesome child, or a group, for instance, pour over it a mixture of water, three parts, and honey, one part. The shorter the time you desire to keep the negative moist, the weaker should be the mixture.

A PHOTOGRAPHER'S EPITAPH.—"Taken from life."—*Fun*.

ANOTHER.—Photographed to death.

### OUR PICTURES.

OUR readers were, no doubt, much entertained by the paper on "Instantaneous Photography," in our December issue, by Rev. Dr. Morton, and would be glad to see a specimen of work of that class.

Anticipating such a desire, we applied to Mr. J. C. Browne, and were favored by him with negatives from which to print the charming pictures appearing in the present number.

As Dr. Morton has already so graphically described, in our pages, the method of securing these beautiful pictures, we need hardly say more. They are only two of the many gems secured by Mr. Browne during the past summer.

Mr. Browne is one of our earliest and most successful amateurs, and, believing it would be acceptable to our readers, we have requested him to furnish us with his working formulæ for publication. He has kindly acceded to our request, and below will be found his remarks:

"Having commenced photography as an amateur many years ago, before that beautiful art had arrived at its present high position, I experienced great difficulty in obtaining a good, reliable negative and printing process. Numbers of published formulæ were faithfully tried, but did not succeed, though some valuable information was obtained from nearly all.

"In offering my formulæ for publication, no claim is made for originality; it is principally a compilation of what I have found by experience to work well. Should this meet the eye of any distressed photographer, sick of trying new methods (as I have been), or a beginner in the art, give it a trial; but, to the successful artist, my advice is, let well alone.

#### COLLODION.

Iodide of Amm., . . .	5 grains.
Brom. of Cadmium or Mag-	
nesium, . . . . .	2½ "
Alcohol, . . . . .	1 ounce.
Ether, . . . . .	½ "
Pary's Gun Cotton, 7½ grains to the	
ounce of mixture.	

#### NEGATIVE BATH.

Fused Nitrate of Silver, .	45 grains.
Water, . . . . .	1 ounce.

Add 5 grains iodide of silver, or let a coated plate remain in the bath over night; make very slightly *acid with pure nitric acid*. Filter.

#### DEVELOPER.

Proto Sul. of Iron, . . .	20 grains.
Acetic Acid, No. 8, . . .	2 drachms.
Water, . . . . .	1 ounce.

"In warm weather, add equal parts of cold water, to reduce the strength of the iron, and then filter.

"After developing with iron, should the negative not be strong enough to print, wash well, and pour over it a solution of Citrate of silver.

Citric Acid, . . . . .	30 grains.
Nitrate of Silver, . . .	20 "
Water, . . . . .	1 ounce.

"Divide the water in equal parts; to one portion add the citric acid, and the nitrate of silver to the other; when dissolved, pour the solutions together. Filter and use.

To strengthen a  $\frac{1}{4}$  negative, pour from the stock-bottle about half an ounce of Citrate of silver into a small bottle, flow it over the plate, drain (the solution may be used several times), and redevelop with iron developer; in warm weather diluting the strength of iron to 10 grains to the ounce. Keep the developer moving over the plate, watching carefully, so that no fogging takes place. Of course, this must be done in the dark-room. By this treatment, the negative will quickly be made strong enough to print without losing the middle tints. Wash well and fix.

#### FIXING SOLUTION.

Hypo Sul. Soda, . . .	Strong solution.
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#### PRINTING PROCESS.

##### *Silver Solution.*

Nitrate of Silver, . . .	80 grains.
Water, . . . . .	1 ounce.

Add ammonia carefully, until there is a heavy precipitate of oxide of silver, then clear up with nitrate of ammonia, and add half an ounce of alcohol to the pint of bath. Filter and use. Do not let the silver fall below 60 grains to the ounce; test with a



standard solution of salt, as the hydrometer will not give the correct amount of silver. This bath will keep perfectly clear. I have had the same solution in use over two years, of course, strengthening it frequently, never adding silver alone, but using a larger amount of silver, say 100 or 200 grains to the ounce of water, also increasing the proportion of ammonia and alcohol. This is done to prevent a large bulk of solution.

"Other baths were found to work as well as this formulæ, but each had a tendency to become clouded.

"The great recommendation of this process for amateurs, is that the bath may be stood aside for one month or twenty; at either time it will be found perfectly clear and ready for use, only requiring filtering as a matter of prudence, there being a very slight deposit in the bottom of the bottle after standing. Float the papers from one to three minutes; it will answer for either plain or albumen papers. Dry perfectly, and expose to the fumes of ammonia for ten minutes.

#### TONING.

"For the last five years, I have entirely given up the use of chloride of gold in a crystallized form, using, instead, an acid solution of gold, prepared in the following manner: having obtained a solution of metallic gold, of a known amount, in aqua regia, evaporate in a sand-bath until the solution appears like syrup, then dilute with water in the proportion of one grain of gold to the drachm of water. Filter, and it will be ready for use. No change or precipitation of gold can take place, so that the bottle is always in good order.

#### TONING BATH.

Warm water, . . . 8 ounces.  
Chloride of Gold, . . . 2 drachms.

Neutralize carefully with ammonia. Do not get an excess, or the prints will be liable to blister, then add 30 grains of salt.

"Wash the prints well before toning, then place them in a dish of warm water, putting half a dozen at a time into the toning bath. Almost any color desired may be obtained.

"Of all the many toning processes given to the public, some very complicated ones among them, none, I think I am correct in saying, give more certain or better results than the old alkaline bath. Some very strong prints are possibly improved by the addition of a small quantity of nitrate of uranium. This chemical is, however, tricky and unreliable. Wash for half an hour, and fix.

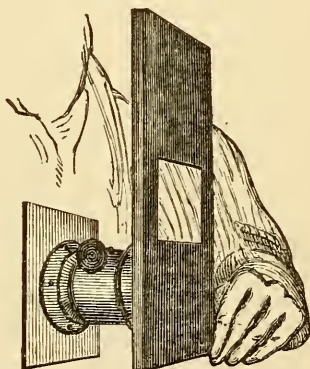
#### FIXING SOLUTION.

Hypo Sul. Soda, . . . 1 ounce.  
Water, . . . 6 "

"When the hypo is dissolved, add to it three or four drops of ether; wash thoroughly. If possible, use warm water in the last washing.

"The drop used in taking these photographs, was made of tin painted black, from a model kindly made for me by Dr. Wilcocks. No claim, I believe, is made to new construction, except that the drop is made of tin instead of wood.

"Have a piece of seasoned wood seven inches long, half an inch thick, wide enough to extend half an inch on both sides of the hole cut for the front of the lens tube, which must be within half an inch of one end, and made to fit the tube tight.



"The drop is made of tin, twelve inches long and wide enough to slip *easily* over the piece of wood. A strip of tin is then soldered across the upper part of the drop, with a half circle cut in it, so that the tube

will not strike the drop. It is prevented from falling off the wood by the tin being neatly bent a quarter of an inch on both sides, three and a half inches from the lower part. Cut a hole about two and half inches square, and the slide is complete.

"To make an instantaneous picture (or rather to make a very short exposure, for the time is about one-sixtieth of a second), place the piece of wood, before described, on the front of the tube (taking care that the front does not project through the opening), so that the longest end will be upright. Then slide the drop over the top of the wood, and prepare the sensitive plate. Focus the lens by lifting the drop so that you can see through the hole, then raise it so that the lens will be covered, as is shown in the cut; holding the lower part very lightly with two fingers, draw out the slide from the holder, placing the eye behind the camera, and wait until the object passes directly in the centre of the plate. Remove the fingers, and instantly the drop falls, exposing the plate while passing the hole (made

square, to give a trifle longer exposure), being covered again by the upper part of the drop; push in the slide and develop.

"By this drop I have taken steamboats passing swiftly by, everything perfectly sharp, showing the exposure to have been quick enough for all practical purposes.

"To any one having an arrangement of this kind made, I wish to give a word of advice. Never go on a trip without a small piece of sand-paper, for under certain circumstances wood will swell, consequently the drop will not fall; but a slight application of fine sand-paper removes all difficulties. Also, do not expose the plate too soon, which is a frequent cause of failure. The caution to 'keep cool' is more necessary here than in any branch of outdoor photography."

Many of our readers have no opportunity of trying such work as our pictures are examples of, but they will find the formulæ reliable for all outdoor work, and the pictures will aid in making up the pleasant variety we have in store for them.

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## Editor's Table.

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Our old friends will please have thanks for their prompt renewals, which daily come in numbers. To our many new ones, we would say that we hope to make profitable our acquaintance with you, and wish you all well.

Our New York correspondent writes: "Your compositor made me say a foolish thing in my last letter, viz.: 'To remove the last trace of silver, a developer is made,' &c. &c. The words 'to remove the last trace of silver,' belong to the preceding sentence, where cadmium is spoken of."

A CORRESPONDENT SAYS: "You tell us a great deal about it, but you do not say when 'Cutting's Bromide Patent' expires."

It is No. 11,266 on the Patent Office record, and was granted July 11th, 1854, for fourteen years we believe.

Since writing on this subject in another column, we have additional proof that the 2d vol. *Chimie Photographie* was not published until some time in 1858. On page 182, the author quotes the *Bull. de la Soc. Phot.* for Nov. 1857. And again, on page 210, the same work is quoted for 1858.

PHOTOGRAPHIC MOSAICS.—This is an annual record of photographic progress, edited by M. Carey Lea, M.D., and Edward L. Wilson, editor of the *Philadelphia Photographer*. The volume before us, for 1867, is brimful of valuable information, hints, formulas, and essays, concerning the wonderful art, and the improvements therein realized during the year now just closed. As a sensitizer of thought, and a developer of ideas, the Photographic Mosaics are very valuable. To say the least, each book is worth its weight in nitrate of silver and chloride of gold.—*Scientific American*.

We feel very proud of the good words of such high authority as the *Scientific American*. It has no equal in its own particular line. It is always so full of freshness, that the school-boy and the sage may always find *much, very much*, in each number to interest and profit them. It should be circulated in all of our families, instead of "New York Dodgers" and the like. It has recently been much enlarged, and, though always prosperous, was never more so than now.

ALBUMS FOR THE NEW SIZE.—With most commendable enterprise, Mr. Wm. Flint, book-binder, No. 807 Market Street, Philadelphia, has worked at them until he can now, and does, produce albums for the new cabinet portraits, that are all that could be desired. Through his kindness we have a very elegant one lying on our table, that outside is so handsomely bound in turkey morocco, gilt, tooled, and clasped, as to make it difficult to make anything better. The inside is equally creditable. It will hold 50 pictures. The openings are of three shapes; round-cornered or double-elliptic, oval, and elliptic arch top. The first have a very novel rustic border around them, original with Mr. Flint, and the others are also beautifully ornamented. The whole affair is chaste and elegant. In a little "preface," which the publisher has printed opposite his copyright notice, he says: "The size is admirable, and the receptacle here offered is that which no family could be complete without."

Mr. Flint deserves great credit for getting up these albums so promptly. At our first mention of it to him, he at once began operations, and photographers are in duty bound to encourage him, for what he has done is for their good. He manufactures about a dozen styles, and will send a priced descriptive list to any address. Those who desire other styles of albums for cartes, or to have their numbers of the *Photographer* bound, will find Mr. Flint ready to accommodate them.

CABINET PICTURES.—Messrs. Wenderoth, Taylor & Brown have sent us a few very elegant specimens of the new size, which are hard to excel. They are doing quite a trade in them, we understand. One of these before us is a copy of "The Cattle-Pond," a very elegant oil painting, by Mr. Wenderoth. The only objection to them, is that the mounts are too large, making it necessary to cut them to get them in the new albums.

Messrs. J. Gurney & Son have sent us some very elegant specimens, which they may justly take pride in. With Sarony's *rest* they have succeeded admirably. We are glad to know that with them the new size is a great success.

THE NEW SIZE.—Our January number has been a decided success. Letters of praise and commendation have come in upon us thick and fast. A great many of our subscribers had never seen the new cabinet portrait, and were astonished at its beauty. A correspondent in St. Louis calls it "a regular stunner," and sends two new subscribers, who could no longer resist taking our Journal. Mr. Notman and his work have been praised in all directions, and many

who had not before tried to make the new size, have gone at it with a will, determined to *excel* Mr. Notman—if they can.

The stock-dealers and back-ground makers have already noticed that orders are rapidly increasing, and we are glad to know it. The size is a most beautiful one, and, in the album, presents an appearance both artistic and impressive. Every photographer should deem it his duty to buy some specimens, show-mats, and an album, and make all the display he can of them, for *they will go*. Some are disappointed because the orders do not come in as fast as for *cartes*. Was it so when the *cartes* were first introduced? No! You must *make it fashionable by good taste and proper push*, and then you may expect a revival in trade.

A correspondent (Mr. F. B. Clench, Lockport, N. Y.), has the right spirit in him in this matter. He writes: "I intend to do my part to make them go. I know they will take if operators will only make them. I make it a rule to make a negative of nearly all of my sitters, and they seldom fail to order when they see them." That is the way, and in that way *cartes-de-visite* were first introduced. There is a good time coming, if you will only do all you can to bring it about.

In answer to our desire for a paper without gloss, we have received two or three responses. Mr. C. F. Richardson, North Bridgewater, Mass., sends the following process for salting, which he has found to give vigor, detail, and warmth, viz.:

Water,	.	.	.	.	33 ounces.
Albumen,	.	.	.	.	3 "
Chloride of Ammonium,	.	.	.	.	180 grains.

Mix in a large bottle, and shake till the salt is dissolved, and the albumen well mixed. Let stand 24 hours, and decant or strain into a tray. Float the paper from one to three minutes, and hang up to dry. Print and tone as usual with other papers. The prints will have all the good qualities of albumen paper, without the gloss. We have not yet had time to try this, but have been making some trials on some paper sent in answer to the same desire, by a correspondent in New York. We shall report on our experiments more fully in our next. As far as we have gone, we have secured prints with admirable detail; in tone, all that could be desired, and a soft, beautiful surface. We do not yet know what it is, but hope it will prove the desired thing.



**THE FRUITS OF NOT TAKING A JOURNAL.**—A correspondent wrote us, a few days ago, to know if his assessor was right in requiring him to put stamps on his pictures? He has been stamping his pictures six months longer than the law required, wasting five times the amount of a year's subscription to our Journal. So much for not taking it.

**PORCELAIN PICTURES.**—Messrs. Wenderoth, Taylor & Brown, through their cashier, Mr. Jos. Blaschek, have sent us a most admirable porcelain picture of a lady. It is exquisitely sharp, and of a lovely tone. Such work deserves the constant run that is being made upon this enterprising firm. Their reception-room is a gallery of art-wonders, and should be visited by all strangers. It is seldom we see anything more beautiful than the specimen before us.

**MAGIC CIGAR-HOLDERS.**—We have received some of these amusing novelties from Mr. Gruné, the inventor, Berlin. Photographing by *smoke* is a new idea, and can be done by any one who smokes cigars.

We have received from one of our subscribers, in Detroit, some very creditable pictures of the new size, in landscape style, by the Tannin dry process. They are of the late residence of General Lewis Cass, at Detroit; three or four views of charming lake scenery; an Indian wigwam and group of Indians, and the photographer and his companion (no doubt), cooking their wild duck over an impromptu fire. We regret that the letter and wrapper accompanying these pictures was brushed from our desk by our boy, while dusting, and we are therefore unable to credit them properly. If the kind donor will be good enough to send us his name, he shall be properly credited herein, and personally thanked. We hope he is busy making portraits of the new size, as well as outdoor pictures.

**MORE DRY PICTURES.**—Mr. E. M. Van Aken, Lowville, N. Y., has sent us a few stereoscopes, made by Mr. G. W. Carter (one of his pupils), by the dry process on page 199 Waldack's Treatise, 1860. They are of wild and lovely scenery around and about Lowville. They are "very good for dry," but longer exposures would have secured better results. They are accompanied by a view from a wet negative, of the forest residence of Edward Z. C. Judson (Ned Buntline), which is charming in its wildness and seclusion. Mr. Van Aken is willing to exchange his views for others, with all who are disposed so to do. They will do credit to any collection.

We have received from Mr. Robert Stark, Woodstock, C. W., stereos of a bridge at Paris, C. W., and of the G. W. R.R. Station, at Woodstock. Thanks to the sender. They were printed, he writes, with a 15-grain silver solution. His plan of treating his paper is, to "put a little alcohol, 95 p. c., in a pan, then immerse the albumen paper for about 15 minutes, take it out and hold it as close as possible to a hot stove, then float for, say, three minutes. I have tried paper at the same time, floated upon a 60-grain bath, and I think that those prints from the 15-grain solution were, in every respect, as good." The prints are quite vigorous, but not equal to those made on stronger solutions.

FROM Mr. J. W. Love, Portage City, Wis., we have received stereos of "Victoria Bridge;" "Natural Steps on Montmorenci River;" "Wolf's Monument, and New Gaol, near Quebec;" "Artemesia Falls, C. W.," a perfect gem, much like Minnehaha; "Falls of Montmorenci;" "Lorette Falls;" "Molin Buade Falls;" "The Citadel of Quebec," and a number of winter Niagara views, which are very beautiful. The little bridge, leading from Luna to Goat Island, is completely crystallized, and is a charming picture. The artist suggests the forming of a stereoscopic exchange club in this country, and offers his views in exchange for others. As the plan may be acceptable to many, we will form on our own account, an informal exchange club, and advertise in our Specialties columns, from time to time, those who announce themselves as willing to exchange pictures with others. Three or four have already joined. Are there any more?

IF Mr. W. R. Gelderd and others who inquire, will look upon page 46 of our last volume, they will find the process for making chloride of gold, as it appeared in Mosaics for 1867. On page 96, same volume, they will find it corrected.

THE following gentlemen inform us that they are willing to exchange stereoscopic views with any parties like disposed: Robert Stark, Woodstock, C. W.; E. M. Van Aken, Lowville, N. Y.; J. W. Love, Portage City, Wis. The latter gentleman expresses some surprise that we have not an "exchange club" connected with the *Photographer*. Such *should* be the case. How shall we organize one?

**THE OLD SEXTON.**—This is the title given to a composition picture, by Mr. E. M. Van Aken, Lowville, N. Y. Very good for the first attempt at that class of work.



Engraving of George A. D. 1866 by M. Savage, in the Clerk's Office of the District of the South, N.Y.

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T H E

# Philadelphia Photographer.

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## On the Truthful Reproduction of Original Drawings by Photography.

BY OGDEN N. ROOD,

Professor of Physics in Columbia College.

THE reproduction, by engraving, of fac-similes of drawings, has been attempted in quite a variety of ways, and with limited degrees of success. In reviewing the history of these efforts, two points seem now to be clearly established: first, that only those engravers who have a large share of artistic and mechanical talent, are at all likely to succeed in this undertaking; and second, that the process itself is expensive as well as very laborious.

There are two shortcomings to which these engraved or lithographed fac-similes are subject: (*a*), defects due to departures of the draughtsman from the original; and (*b*), imperfect rendering, due to the wide difference in the processes employed by the artist and engraver. The deviations from the latter cause vary in character with the manipulation employed; in line engraving they are usually very wide, being less extensive in mezzotinto. It, however, in most cases requires an effort, to call up by the imagination, the exact look of the original drawing from the inspection of its engraved copy. Chromo-lithographs, executed in a single tint, are not so much open to this last objection; they can sometimes be met

with so perfect, as on first glance to be mistaken for original drawings, still, in their case, we are dependent on the skill of the artist, and it is doubtful whether very complicated work can be faithfully rendered in this way.

Hence, it is evident that here we have a legitimate field for the exercise of the photographic art, provided the work can be more accurately executed. Of far less importance, I consider the photographic reproduction of line engravings or of expensive lithographs. This proceeding is often essentially piratical in its nature; at the best, the prints produced must be inferior to the originals, and if the size be at the same time considerably reduced, they become nearly worthless. These objections of course will not weigh where the original copied is old or exceedingly rare, or where some other equally good reason has called in the aid of the photographer.

Attempts to reproduce original drawings by photography, have often been made, and it is my wish to point out two important respects, in which the work has generally not been satisfactorily performed, and to suggest remedies.

1. It is usually very difficult to obtain a good negative of a shaded drawing; the outlines will be correctly enough placed, but the relative depth of the shades is, in

most cases, not satisfactory, or, at all events, not in correspondence with the original, so that, in a print of a dark sepia drawing, large masses of unrelieved blackness are likely to occur, and many minor gradations in the middle tints and lights are either lost or altered. These defects can be avoided by retouching the negative, or, more particularly, a glass positive, in the mode I have described at length in the February number of the *Philadelphia Photographer*. It is evident that the retouching process ought to be effected only by a competent artist, or the matter might be made worse. It may be objected, that we have not then entirely got rid of our expensive draughtsman; this is true, but his work has been rendered much more certain, as well as shorter and easier.

2. A really good negative, having thus been obtained, a few remarks must be made concerning the prints. Thus far, albumenized paper has generally been employed in the printing process, and the only effort in the toning, has been the attainment of tints that were considered beautiful. Albumen prints are, to my mind, most unsuitable for this purpose, on account of their lustre. The lustre hides, to a considerable extent, the manipulation and touch of the painter, so that no effort of the imagination will enable one to deceive himself for an instant into the belief that he is looking at an original drawing. So far do these albumen prints fall short in this respect, that they are actually sometimes surpassed by the best line engravings. See plate 43, p. 278-9, vol. iv, "Modern Painters," by John Ruskin, English edition. In this plate, Mr. Cuff has, by the aid of *lines*, produced a fac-simile of an India-ink drawing by Ruskin. The original was on gray paper, and the drawing was relieved with opaque white. The look of the places where the white was washed on thin, and again, where the paper has been loaded with it, are rendered in the most beautiful way, so that, without a lens, it is difficult to believe that we are dealing with lines.

Somewhat more than a year ago, a house\* in New York, published a set of photo-

graphs from the original rough sketches, made by the celebrated Turner for his *Lieber studiorum*. These interesting photographs, not being "pretty," met with but little favor from the public, and when I last saw the publisher, the price had been reduced one-half. I have made a careful examination of one of the copies, and while the photographic work seems to have been executed with care and skill, still, as the prints are on albumen paper, the difficulty complained of is present in the usual degree. Being anxious to get a distinct idea of the look of the original drawings, I was obliged, in order to effect this, to make careful sepia copies with the brush, slightly altering, in some places, the depth of the shade, to counterbalance the known deviations in depth usually produced by simple unaided photography.

Now, if we were restricted to albumen prints, it would be well to be contented with their lustrous surface and purplish color, and to be thankful for having copies of original drawings on these terms. But we are not thus restricted. Some three years ago, I saw, in the house of a friend, a fine sepia drawing by Darley; I often admired it, and amused myself by tracing out the history of different parts of the manipulation, and by observing the modes in which the accidents of water-color painting had been utilized by the master. My surprise was not small, some months afterwards, on being told by the owner that the picture was only a photograph. It had been printed on plain paper, and had, perhaps by accident, been toned just to a sepia hue. A print of this character would have for me a greater value than many albumen prints, because it would call up far more perfectly the idea of the original drawing.

This indicates, then, that the printing should be done on plain paper, and that the toning should be so contrived that the finished print might have, as nearly as possible, the color of the original. These observations will apply with a little less force, to the case of photographs of crayon or pen-drawings. As these depend mostly on visible lines, the touch of the artist will not be so much concealed by the glaze, yet the imitation would be closer on plain paper.

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\* John McClure, 564 Broadway.

On the other hand, as there is naturally a certain amount of lustre on the surface of oil paintings, it is desirable that they should be reproduced by the medium of albumenized paper.

I have already indicated in the February number of this Journal, a use that photography might be put to in the publication of original drawings, the glass-plates being prepared in a peculiar way, and it now only remains to add that the printing of these drawings should, if possible, be effected according to the principles above indicated.

NEW YORK, January 24th, 1867.

## ON THE TREATMENT OF UNDER-EXPOSED NEGATIVES.

BY M. CAREY LEA.

NOT very long back I noticed, in a photographic journal, I cannot now remember where, a statement to the effect, that where from the circumstances it became necessary to take a negative with an insufficient exposure, and therefore where a harsh white and black plate was to be expected, this might, to some extent, be remedied by washing off the silver solution from the exposed plate, and developing very slowly until all the detail was out, then redeveloping until the necessary strength was obtained. The idea was, that by the first operation, a very thin image, full of detail, was to be got, and then, by redeveloping, this was to be raised to printing strength, without the harshness that would have come with the ordinary treatment.

This statement, having recently recurred to my mind, I concluded to subject it to what is, in such cases, the most decisive test. I ruled a line across the back of a stereoscopic plate, and, after exposing it intentionally for an insufficient time, about half what would have been proper for a good negative, I broke the plate. One-half I developed with the common iron-developer (avoiding the collo-developer which I prefer, in order to bring the case down to the regular experience of photographers), and then redeveloped with pyrocitric acid and

silver, until the plate was brought out to that condition that such a plate was capable of.

The other side was rinsed under a tap, and then slowly and carefully developed. It did not take to this operation at all kindly. It came out spotty and irregular. On comparing the two, as to detail in the shadows, for which this process was to be particularly useful, the half which had gone through the regular treatment was, by far, the best. Its detail was perfect, though of course too thin to give a satisfactory print. In a word, it had the faults only of an underexposed plate, whereas the other, besides having these to a greater degree, was streaky and stained besides.

These experiments led to others directed to observing the comparative effects of redeveloping and strengthening. It is a common opinion, that in redeveloping a plate, the dense parts take the silver out of proportion to the thin ones. This, I think, is not the case. That is, suppose one part of the negative is four times as thick as another, and we redevelop till the thin part has doubled, the denser part will not have also doubled, but will fall a little short of doubling.

This, I think, will appear both from a careful consideration of the subject, and from experiment. For, no matter how thick a deposit is, it is the surface only that can receive further deposits. Unquestionably, a greater deposit will be attracted by a closely covered surface than by a thinly covered one, but not in proportion to the whole aggregate mass of deposit. For those particles that are covered up by others, can exert no further attraction upon the precipitating silver. And in the more opaque parts there will necessarily be much more silver that is thus covered, than in the thinner.

This matter receives a good illustration if we consider the principles of strengthening. If, by treating a negative with appropriate solutions, we convert the silver into sulphide, and if every atom of sulphide stops three times as much light as the original atom of silver, then every part of the negative becomes three times as dense; that is, the whole negative becomes proportionately



denser; the opaque parts are trebled just as much as the thinner.

Experiment, I think, bears this reasoning fully out. Trials which I made expressly for the purpose, strengthened my conviction that if a thin negative be strengthened after fixing, the contrasts in it are greater than if it be redeveloped. And as to underexposed negatives, the difficulty always lies in the direction of too great contrast; in all such cases, a redevelopment will be more appropriate than after-intensifying. And, moreover, in this connection it is not to be forgotten, that in a redevelopment before fixing, we always have the chance of bringing out more detail, which chance is, perhaps, lost when the negative has been thrown into the fixing bath. Formerly, this was assumed to be inevitably the case. But I have shown, some time back, that the capacity of the latent image for development, is not destroyed by fixing, but that a plate which has been fixed, may be subsequently developed. It seems certain, however, that a part of the basis of development must be removed by the hyposulphite, so that the advantage is every way on the side of the redevelopment.

There are cases, however, in which after-intensifying is better than redevelopment. Where light is bad, and at the same time there is an almost entire absence of contrast, after-intensifying may be very useful. And when great contrast is desirable, as in copying line-engravings, full size, excellent results are got by appropriate intensifying, such as that which I have described with Schlippe's salt. I may here remark, that the chlorizing operation which I some time since recommended, answers most excellently, and deserves to supersede the use of iodine, as a preparation for the use of either alkaline sulphide, or Schlippe's salt. It is simply to dilute a strong solution of bichromate of potash with fifteen or twenty or more times its bulk of water, and then to add hydrochloric acid in the proportion of a drop or two to the ounce, not more, or the solution works too rapidly. This mixture, poured over the negative, quickly whitens it; it is then washed well off, and the solution of alkaline sulphide or Schlippe's salt is poured over. It works far better than solution of

bichloride of mercury, which sometimes acts unevenly, and so ruins the negative. It is also an object to get rid of poisons, such as corrosive sublimate, from the neighborhood of careless or thoughtless persons, and not to have the fingers frequently wetted with mercurial solutions, is a decided advantage.

### On Setting the Camera for Photographic Reduction.

MR. M. CAREY LEA, PHILADELPHIA.

DEAR SIR: I was compelled to close my letter of June 8th, 1866, on photographic reduction (published in the *Philadelphia Photographer* for September, 1866), without giving the details of the practical operation of setting the camera for a reduction. Intending to follow it with another, to give the omitted matter, I have, since then, had my head and hands occupied with fitting up a new electrototype laboratory and a new photographic establishment, including a lighting-room, after the admirable model given in the *Photographer* for June of the past year. But these being now nearly completed, I will try to exhibit to you the ease and certainty by which we make our reductions on the principles given in my former letter.

But, recurring to the *principles* on which the operations are based, I notice that my letter in the September number is preceded by a remark that the "difference which I find between the calculated and measured absolute focus, probably arises from the fact that in the formula I use ( $\frac{1}{f} = \frac{1}{v} + \frac{1}{u}$ ) the thickness is not taken into consideration." This remark, while it points directly to the peculiarity of the method I use, still makes me suspect, that in my former letter I did not fully succeed in calling your attention to the distinguishing feature of the method, which is this: that, by making the focal length of the lens, the distance from the focus to the *focal centres* (in contradistinction to a focal length measured from the *optical centre*, or from the surface of the lens), as you have so beautifully elucidated in the past June number of the *Photographer*; then in the formula for the conju-

gate foci, *no correction of the thickness is required.\**

Perhaps you may dissent to the broadness of that proposition, for to affirm that in every lens and combination of lenses, the position of the conjugate foci is determined precisely as in an equivalent lens of no thickness, is not only new in optics, but contrary to what has been taught.† But that such is the case, I think you will, on examination, admit; and, moreover, that the correction for thickness has been required simply because the focal length of lenses, as generally given, was erroneous, not being the "equivalent, principal, or absolute" focal length as you demonstrate in the June number.

Opticians tell us that the simple formula,  $\frac{1}{v} = \frac{1}{f} - \frac{1}{u}$ , gives the conjugate foci only when the lens is without thickness, or when it is so small as to be of no consequence. But when the thickness is so great as to affect the calculation for practical purposes, then the formula has to undergo certain modifications in terms of the index of refraction, radii, and thickness. By this modification, the formula loses its simple reciprocating action. Still it is evident that in every lens the conjugate foci maintain their reciprocal relation. While seeking for the law governing this relation in the Globe lens, I projected a great many measured focal lengths, on a large sheet of paper, and obtained a curve which I found to be a hyperbola; every focal length taken from the apex of the cone of radiation, being an ordinate between the curve and asymptote, plus a certain quantity which is the length of the ordinate at the vertex of the curve. Moreover, by inspection of the simple formula, supposed to be applicable only to a lens of no thickness, it is evident that the distances of the conjugate foci from the principal foci on their respective sides, are reciprocals, and the principal focal length the mean

term or unity, and consequently, these also are co-ordinates, drawn from the curve to the asymptote of a hyperbola, just as I found in the Globe lens by measurement. Hence, I concluded that in every lens and combination of lenses, whatever the thickness, the relation of the conjugate foci to the principal focal length is the same as in a lens of no thickness, therefore, for locating the conjugate foci by the simple formula, nothing is required except to know the *true* focal length (equivalent focal length), and its place of beginning, that is, *the focal centres*.

Having stated the basis on which the setting of the camera is made, I will now hasten on to describe the operation. When a drawing is received for reduction, the first thing to be considered is the size to which it is to be reduced. If it is some simple proportion, as  $\frac{1}{3}$ ,  $\frac{1}{4}$ , or  $\frac{1}{5}$ , it is easy enough to determine the places of the conjugate foci by easy sums in multiplication and division, performed on the focal length. It is seldom the case, however, that the proportion is such as is expressed by small numbers, being a little above or below the easy fractions given above. The drawings are always liable to a change in size, from changes in the weather, but the reduction (an ambrotype on glass) must be exact to the one ten-thousandth of a metre, therefore, no consideration of the *proportion* is at all made. Let us take a case in the routine of the work: I receive a drawing with an order to reduce it to the  $\frac{1}{80000}$  scale; the drawing (a map), has the minutes of latitude and longitude marked on it and numbered. I observe that it extends from latitude 43 degrees 43 minutes, to latitude 43 degrees 47 minutes, and embraces 9 minutes of longitude. It is also stated on it, that it is entered on our registers as sheet No. 916, and is a part of Casco Bay, Maine. The order to reduce it to the  $\frac{1}{80000}$  scale, means that the reduction must be  $\frac{1}{80000}$  of the size of the place represented. I turn to the tables of the length of every minute of longitude between latitudes 24 degrees and 50 degrees, published by the United States Coast Survey, in the report for the year 1853, and find that 9 minutes of longitude at latitude 43 degrees 45 minutes, measure 12,079.89 metres, and, dividing this by 80,000, get .1510 metre for

\* This view appears to be correct, and the objection must be withdrawn. L.

† As a sample of the general opinion that the thickness interferes with the standard formula for the conjugate foci, see *The Silver Sunbeam*, page 253, 1st edition, where Dr. Towler states the correction for thickness, but evidently considers its application impracticable.

the size which the reduction is to be; then measuring the 9 minutes of longitude on the drawing, I find it 1.2052 metres; now I have the proportion of the reduction to the drawing expressed by the fraction  $\frac{1510}{12052}$ ; I form no mental conception of its value, but proceed to work with it precisely as I would with a simple  $\frac{1}{3}$ , that is, as indicated by the formula for the lens of no thickness;—obtaining the distance of the drawing from the first focal centre, by multiplying the focal length of the lens by the denominator of the fraction, and dividing by the numerator, and adding one focal length to the product, and obtaining the distance of the collodionized plate from the second focal centre, by multiplying the focal length by the numerator of the fraction, and dividing by the denominator, and adding one focal length to the product. To save time and avoid errors in multiplying and dividing with high numbers, a table of logarithms is used; of course I need not describe the operation to you, but, for the sake of exhibiting the whole operation of setting the camera by calculation, let us go over the logarithmic operation. Remembering the principal focal lengths given in my former letter, we have—

.5046 metre, the focal length on the object side of the lens.
.5032 metre, the focal length on the image side of the lens.
1.2025 metre, the size of the drawing.
.1510 “ the required size of the reduction.

And bringing all the numbers to unity, for the sake of having the characteristics alike, we get from the table of logarithms:

Log. of 5046. = 3.7029472
“ 5032. = 3.7017406
“ 12052. = 4.0810591
“ 1510. = 3.1789769

Then adding the logs. of the first, and subtracting the fourth from the product:

Log. of the focal length on object side, . . . . .	3.7029472
Log. of the size of drawing, . . . . .	4.0810591

Log. of product of drawing and focal length, . . . . .	7.7840063
Log. of the required size of the reduction, . . . . .	3.1789769
Log. of required distance, minus the focal length, . . . . .	4.6050294

Then looking in the table for the number corresponding to the last log. we find 40274., and adding to this, one focal length, and removing the decimal point to again make metres—

4.0274
.5046
4.5320 metres.

The product is the distance the drawing must be from the inner focal centre of the lens.

And taking the focal distance on the image side of the lens, and proceeding inversely to the former:

Log. of the focal length on image side, . . . . .	3.7017406
Log. of the required size of the reduction, . . . . .	3.1789769
Log. of product of required size and focal length, . . . . .	6.8807175
Log. of the size of the drawing, . . . . .	4.0810591
Log. of required distance, minus the focal length, . . . . .	2.7996584

And looking in the tables for the number corresponding to the last log., we find 630., and removing the decimal point to convert the decimillimetres to metres, and adding one focal length, we have—

.0630
.5032
.5662 metre.

which is the distance from the outer focal centre to the photograph.

A mark is made on the side of the camera to correspond with the inner focal centre, and the calculated distance for the drawing being laid off on a rod, the camera is moved, to bring the mark on the camera in conjunction with that on the rod. The base-



board of the camera has a graduated strip of brass set in its edge. The part of the camera which carries the shield, has a vernier running on the graduated strip, the vernier and graduated strip being set in reference to the outer focal centre, the reading exhibits the distance of the face of the collodionized plate from the focal centre. The back of the camera has then only to be moved till the vernier reads the amount of the required distance.

Setting the camera by calculation, instead of by inspection may appear as a prettier way of getting the size and focus, but it is vastly more than a mere matter of elegance. The advantage of the method, however, can be fully appreciated only by those persons who have had to keep the head in the suffocating "black-bag" for hours, "focussing" in a room at a temperature of 110°, Fahrenheit;—a temperature which has often to be endured in these photographic operations, from the necessity of keeping out the wind to avoid any agitation of the camera or drawing. By the inspection method, I have often been worried for a whole day with trials and failures, to get the right size and focus, and at last had to put up with only an approximation to what was required. By the method of calculation, I have frequently set the camera in less than one minute, and nothing more could be required in the sharpness and size of the resulting photograph.

Fraternally,  
GEO. MATHIOT.

WASHINGTON, January 22, 1867.

The foregoing letter will be read with much interest by all who have similar work to execute, and by scientific photographers generally. There is no doubt the means taken by Mr. Mathiot are precisely those best suited to the object aimed at. L.

## TO A CLASS OF TROUBLED PHOTOGRAPHERS—II.

It is very encouraging, gentlemen and ladies, to see so many of you present at our meeting this morning. I also feel encouraged to see so many negatives lying upon the table for examination and comment.

You must not be discouraged if you find me very particular and exacting. I intend to be so. My purpose is, to drill you and teach you until you can make *perfect work*, worthy of yourselves and of your humble instructor. Until that is accomplished, you remain a *troubled photographer*, and need to continue your visits to our meetings. When you come, bring your troubles with you, and we will talk over them, and see if they cannot be overcome and removed. Do not be ashamed to acknowledge that you *are* in trouble, when such is the case. We all acknowledge ourselves to be in the same condition, by our presence here. If any are here who think their work is as good as it can be, we desire that they should retire, as this is a confidential meeting.

Now, before making any further remarks, let us examine some of the negatives before us, and see if any trouble has been encountered in making them. If you have followed the instructions given you at our first meeting, you no doubt have your chemicals in capital working order, and have found no trouble with them.

If each member of the class will take his or her own negatives, I will hear from you in turn, and we will see what the difficulties are.

Mr. Cloud: "I find my collodion to flow nicely, my bath apparently in good order, and my negatives, as far as I can judge, very good, until they are developed, when my old trouble, *fogginess*, appears, and I am at a loss to know where the cause lies."

I presume that you mixed your preparations according to directions. Have you altered anything about your dark-room or camera-box, since you began to experiment with us?

"My chemicals were carefully prepared as you directed. I have in no way changed my apparatus or dark-room, as I was under the impression that they were all right."

In what way, and where do you develop?

"It is my habit to develop near my dark-room door, with it slightly open, so that I can fairly see what I am about."

Ah! innocent man. *White light* is your trouble. Cut a hole in your dark-room door, and put yellow glass in it, and at the same time see that your camera-box is light-

tight, and your holders free from cracks where the light can get in.

Mr. Vapor: "My trouble is much the same as that of Mr. Cloud, but must, I am sure, arise from another source. No light gets into my dark-room, and my camera-box was purchased since our last meeting."

Did you test your bath to see if it was acid or neutral?

"I did not, but I am sure it was not *acid*, for I confess I forgot to add any acid to it."

There you did wrong. Fogginess is not so likely to occur when you work a bath slightly acid, though it as often occurs when too much acid has been added. Use your litmus paper, and let it guide you. Do not be too indolent to go and get it if it is not close at hand just when you want it. You could have avoided *this* trouble, though; aside from fogginess, your negatives are by no means perfect. I fear, Mr. Vapor, that you are not as *careful* as you ought to be. We will talk further about your other troubles. We may meet them with some one else. As the class is large, only a few moments can be given to each one, so we shall hear from one of the ladies next.

Miss Tea: "As fogging seems to be the general topic, I must express myself as being troubled in the same way, though I am not by any means free from other trials."

You are very modest in your assertions, Miss Tea. Your negatives are by no means void of many good points. They show nice, careful manipulation. Your plates are coated nicely. Your bath and your collodion seem to agree, and all things seem to be working nicely. How is it then that you are in a fog? How was your developer made?

"Ah! now I fear you have caught me. I confess that I ran short of acid, and having no one near to send for some, I had to do the best I could with what I had. I took fourteen ounces from my stock-bottle of iron-solution, and only had a little over an ounce of acid to add to it."

Want of acid in your developer has caused the misty appearance of your negatives, Miss Tea. Please try again. Now the next.

Mr. Murky: "I should rather sit still and listen, sir, and improve by avoiding the faults of others; the more so, as I too, am

in a fog. I think that none of the cases mentioned are like my own. I am sure that in all the points commented upon, that I am all right. My negatives are by no means perfect, but I think if I could get rid of this, so I could see, that the other annoyances could be overcome."

I think your trouble is in working with too neutral a bath and collodion, but, as I shall remark further upon that point presently, we will pass it over for the present. You can then tell whether or not I have hit upon the right cause and cure. I find that a number more are afflicted in the same way, and from similar causes, so I will hear what other sources of trouble are to be spoken of, before getting further into the fog.

Messrs. Barr, Line, Marks, and others: "We are troubled with streaks and stains, and curious markings on our negatives."

Messrs. Dott, Pinoli, and others: "Our chief troubles arise from spots, specks, and pin-holes."

Miss Ruff: "My trouble seems to be caused by harshness, in the first place, and, secondly, want of contrast and a lack of vigor."

Well, ladies and gentlemen, while some of the negatives before us are really very good, yet there is scarce one faultless one out of ten. In some, the defects are but slight, while others combine all the troubles that have been mentioned this morning.

This state of affairs will entail a great deal of careful examination and experiment, before we can hope to arrive at perfection—more than we can possibly undertake to attend to at one meeting. We shall, therefore, have to take up the troubles one at a time. The process will be slow, but we hope, sure; and I trust, that if you will earnestly follow the directions of your speaker, that you will improve as our acquaintance grows, and that our intercourse together will prove mutually pleasant and profitable. Pardon me for saying that the imperfections so apparent in your negatives, are almost wholly the result of carelessness, *inattention to what you know*, and want of cleanliness. I expected this, and shall frankly tell you whenever I find you guilty.

We have found then, that the troubles to be considered and removed, are: I. Streaks

and stains. II. Spots and pin-holes. III. Harshness. IV. Want of contrast and general lack of vigor; and V. Fogging.

As the latter hides many other imperfections, and has been the principal topic this morning, and as we cannot very well work in a fog, we will make it the first subject of remark, and try to instruct you, so that you may never become beclouded and bedimmed again.

First, then, let us consider the causes of the fogging of negatives, and then the remedies.

As our experiments have been made with entirely fresh chemicals, fogging cannot, in your case, be caused by old collodion, bad developer, a contaminated bath, &c., but is caused by one of two things, viz.: want of purity in the chemicals, or (as is most probable), the trouble lies in your dark-room, camera, &c. If it comes from the first cause, reject them at once, and procure good ones at some reliable stock-depot. If it is the latter, a careful examination will show you where the trouble lies. I will now repeat what has already been mentioned, and show you what will surely produce fogging. I. Want of union between the collodion and the nitrate-bath. II. Want of sufficient acid in the developer. III. Want of sufficient acid in the nitrate bath (or an excess of acid will sometimes produce the same effect). IV. Diffused white light in your dark-room, camera, &c., caused by not shutting your door close; having cracks and chinks in the partitions; not having your yellow glass sufficiently dense to obstruct all the white light; taking the plate out of your bath too near the gas or lamp, and by developing too near the same; by want of care in redeveloping, and light reflected from surrounding objects, thereby obstructing the direct rays from the sitter, which alone should pass through the lens. It may also be caused by excessive over-exposure, and by under-exposure, with too long a development; also by keeping the plate too long after taking it out of the bath before development. It is also very frequently caused by the fumes of ammonia, turpentine, and other volatile chemicals, standing about upon the shelves of your dark-room.

Therefore, you will see it is easy to pro-

duce foggy negatives without the chemicals being in fault. At some future meeting, as our chemicals get old, our bath contaminated, &c., we may have cause to refer to this subject again, but our present business is with our present troubles.

The question then arises, is the trouble in the chemicals or not? This we can easily determine. We will now darken the room and light the gas, so that you can watch my movements. I now take a perfectly clean plate, coat it with collodion, dip it as usual in the bath, and cover it over; while it is coating, I will take the plate-holder and lay it flat down, open it and put in a negative, varnished side up. I then lay a narrow strip of cardboard on each end of the negative, so that when I put in the sensitized plate, it will be as near in contact with the other as possible, without touching. Our plate is now coated, and I turn down the light to the lowest point that I can see with, remove the plate from the bath, and, after draining it carefully, lay it, collodion side down, upon the strips of cardboard, and fasten the frame. I shall now turn up the light, and hold the plate-holder three or four inches from the gas, draw the slide, and expose it four or five seconds; if your light should be a lamp, expose longer; shut the slide, and then turn down the light as before, and develop. The result will be a positive by transmitted light. I will pass it to you, and you can now see that it is clear and brilliant, so there is no fault with the chemicals we are using at present. If, on the other hand, this should have proven foggy, the trouble most likely would be in the collodion, because if the bath is made according to directions, and without doubt is slightly acid, the chances are not one in a hundred that the trouble is there. So in such a case, examine your collodion; if it is a very pale color, it is neutral and perhaps alkaline, which is the very worst state it could be in if you desire clear negatives, because an alkaline collodion coming in contact with an acid bath, causes a slight effervescence, which is fatal to a perfect union between the collodion and bath. Now, without going into the chemistry of gun-cotton (for you can find that in any book on photography), I would remark that a num-



ber of manufacturers, instead of washing the acid carefully out of the cotton with water, neutralize it with an alkali which generally leaves a trace of it in the cotton; we must, therefore, get rid of it in the collodion. Now my experience is, *that if your bath is acid, your collodion must be slightly acid also, in order to form a perfect union between them.* A great many operators advocate a neutral bath and collodion, but I have never yet seen one that could work them successfully for any length of time, as the collodion is continually changing, and is never in precisely the same condition two days together.

The best remedy that I know of, for a pale neutral collodion, is to take from the stock-bottle as much as you think will last you for the day, and add to it a little old red collodion, until it assumes a rich orange color; if you have no old collodion, a drop or two of tincture of iodine will do as well. Let it stand a few minutes, and try a plate, and I am quite certain you will find a great improvement. On the other hand, if your positive picture is clear and brilliant, as in the present case, and your negatives are foggy that are made by day, the trouble undoubtedly comes from light penetrating in some place where it ought to be excluded, the only remedy for which is, to find the enemy, put him out, and keep him out.

Permit me now to close with a few remarks, which, if carefully followed, you need never be troubled with foggy negatives.

1st. Have your glass very clean.

2d. Keep your bath well filtered and slightly acid.

3d. Let your collodion be a good orange-yellow color.

4th. Have your developer fresh and clean.

5th. See that there are no splits or cracks in your dark-room, by which white light is admitted.

6th. See that your cameras and plate-holders are in good condition and perfectly light-tight.

7th. Never allow reflected light to enter your camera, but so screen your light that the direct rays will fall on the sitter, and leave your camera in the shade.

8th. Never take out or develop your plate by too strong a light.

9th. If you use yellow glass to light your

dark-room, coat a plate and expose it for three or four minutes near the glass, and then develop it; if it fogs, put a yellow cambric curtain over your glass.

Finally, keep your hands, and everything about you, *perfectly clean.* At our next meeting, I hope you may be able to say: I am no longer troubled with foggy negatives.

I am much obliged to you for your attention and interest. Please be very careful in your next trials, and bring your negatives with you as before. If there are any at a distance who are unable to attend our meetings regularly, they may correspond with us, and I shall be glad to hear from and answer such. Meantime, good morning, and *keep your hands clean.*

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## THE BEST WAY TO RESTORE OLD SILVER SOLUTIONS:

A REMEDY FOR PIN-HOLES, FOGGINESS, STREAKS, AND MANY OTHER TROUBLES.

EVERY photographer knows how important it is, in order to work successfully, to keep the silver solutions in good condition, and that different processes are used to accomplish this result, more or less. Diluting the bath with water, filtering the precipitated iodide of silver out (which, if in excess, causes pin-holes), boiling down to the proper strength, and afterwards exposing to sunlight for some time, is a pretty good way and less expensive and troublesome than precipitating all the silver by means of soda, copper, etc., and redissolving it in nitric acid.

Let us now investigate which is the simplest way of obtaining the best result, and examine, first, which are the principal changes going on in the bath while it is in use.

1. By frequent use, the bath loses in strength, and consequently, the ability of keeping all the iodide of silver it contains in solution, is diminished. The iodide of silver will gradually form in small needle-like shapes, settle on the plate, and produce the awful pin-holes.

2. The bath gets, by use, more and more

saturated with alcohol from the collodion, which counteracts the quick formation of the sensitive film in the bath, makes the silver solution, while the plate stands in the tablet, run down in irregular streaks and waves; and also, in developing, prevents the developer from spreading evenly and quickly over the surface of the plate. (The excess of alcohol can easily be recognized by the smell of an old bath.)

3. The old bath will always contain more or less organic matter, work slower and less perfect than a new solution.

The remedy now, for all these inconveniences, is as follows:

1. Take the old silver solution and mix it with one-half its volume of rain or distilled water. The excess of iodide of silver will precipitate instantly, and this cause of pin-holes is removed at once by filtering the diluted solution. The filter which contains the excess of iodide of silver, must be thrown with the clippings of silvered paper, and *ought not to be used again after the silver is boiled down.*

2. Pour the filtered solution in an evaporating dish of Berlin porcelain, which is placed in a pan of iron of about the same shape, but a little larger than the dish, in which has been previously spread out a sufficient quantity of fine sand, in order to prevent the dish from breaking. Now set the dish, placed in the sand-bath, on a charcoal furnace, or over a good lamp suitable for the purpose, and *let all the solution boil down.* Finally, it will get dry, and if the heat is still continued, the nitrate of silver will melt as lunar caustic. Do not be afraid that the dish will break; if it is placed in the sand-bath, it is all safe. Continue the heat until all the silver is melted, and evaporation has ceased. The silver will be, in this state, like a heavy oil, and remain quietly on the bottom of the dish. If this point is obtained, the process of melting is finished. Remove the dish *with the sand-bath*, from the fire, and leave it in the sand-bath until it slowly gets cool, taking care not to expose it to a strong draught of air. *Never take the dish out of the sand-bath while still hot*, as the sudden change of temperature would be sure to break it; but, if it *cools off gradually there is no danger at all.*

Also, never pour any water in it before it is perfectly cold, for the same reason. In cooling off, the silver is contracted by the change of temperature, and produces sounds as if the dish was cracking. But this is the silver and not the dish, and need not cause any alarm.

3. After the dish has become perfectly cool, the nitrate of silver will all be found in a solid mass, as lunar caustic, on the bottom of it. It must now be dissolved again, by pouring water on it, and warming it in the sand-bath over the fire, to facilitate the dissolving.

4. After all is dissolved, let it get cool, measure by means of an argentometer, and bring it to the proper strength, by adding water to it. No iodide need be added, as it still contains a sufficient quantity of iodide of silver.

5. Filter the solution, and add nitric acid, drop by drop, until it turns blue litmus paper red (but slowly). By fusing, part of the nitrate of silver is transformed into nitrite of silver, which has an alkaline reaction on litmus paper, and the presence of it in the bath would produce fogginess and streaks on the plates. The addition of a little nitric acid will render the nitrite into nitrate, and will bring the solution into a condition as good as when newly made. You may use it at once, or, better, let it stand in the sunlight for about a day before use.

The advantages which this process of melting has, are that *all* the alcohol and *all* organic matter and impurities are perfectly removed, also, any excess of acid in the bath, if there had been too much added to it. This is not obtained by boiling down the solution to only half its volume or so, as alcohol, organic matter, and acid are only chased off by fusing heat. The only expense is a few cents for charcoal. The evaporating dish will last a long time, with the precautions above stated. The process answers also for paper silvering solution, which has turned brown, or got out of order; and if all remedies, as addition of salt, acetate of soda, or citric acid and bicarbonate, fail to restore the solution, the melting will make it all right, and restore it to good working condition. It is best to perform the melting outside of the opera-

ting room, as small particles of silver might be thrown up in the air, and settle on prints hanging or lying near it. You will be astonished, in boiling an old solution used for silvering paper, how much albumen it contains, which is all decomposed in the fusing heat and chased off in the air as an intense and peculiar smelling steam. Melt until all this evaporation has ceased, and the albumen will burn up entirely.

CRAMER & GROSS.

St. Louis, January, 1867.

### OUT-DOOR WORK WITH IN-DOOR LENSES.

MANY photographers have commissions to execute out-door views of residences, &c., in their neighborhood, but are prone to refuse such orders, on account of being without a view lens in their possession. Not having encouragement enough to warrant the purchase of such a lens, they have to disappoint others, and themselves meet with loss.

Now we do not intend to advance any new idea, neither do we approve of the method we are about to speak of, as a general thing, but it is not known to all that by removing the back lens of a portrait combination, a very fair view lens is obtained, which may be used to advantage in desperate cases, where a regular view lens cannot be obtained. We do not recommend this plan as likely to produce the most successful results, neither would we like to see it generally adopted, for it would tend to bring down the high standard which we desire photography to maintain, but it is our principle in business to secure all the patronage we honestly can, by gratifying our patrons; and when it is necessary, to do that, to use the front lens of a portrait combination for making views, we say do it, even if the *wind* does blow the telegraph poles into semi-circles.

We are led to these remarks by a number of views made in this way, and sent us by Mr. W. L. Wilder, Laconia, N. H.

No. 1 is a view of some buildings and a bridge, made with the front lens of a half-size Jamin portrait combination,  $6\frac{1}{2}$  inch fo-

cus and  $\frac{5}{32}$  inch stop. The circle of light is nearly 7 inches, only moderately sharp, and only slight curvature at the outer edges. A factory chimney in the centre, with scaffolding around it, shows the lines to be perfectly straight, and the definition very fair. Had a smaller stop been used, much greater sharpness would have been obtained, but such a stop was not with the lens. The developer used, was water, 16 ounces; protosulphate of iron, 6 drachms; acetic acid, 2 ounces; ammoniæ,  $\frac{1}{2}$  drachm; Excelsior Collodion (H. C. Price & Co.'s).

No. 2 is a landscape view, made with the front lens of a  $\frac{1}{2}$  size combination, 12 inch focus, and  $\frac{3}{16}$  inch stop. It is also fair, but lacking considerably in sharpness, though giving remarkable distance, the Belknap Mountains, six miles distant, being unusually well defined for such a view. Circle of light, fully eight inches.

No. 3 was made with the front lens of a  $\frac{1}{3}$  size combination, 12 inch focus, and  $\frac{3}{16}$  inch stop, and is a view of some buildings. There is an almost entire absence of curvature of the lines. It is carefully focussed, and quite as sharp as could be obtained, we suppose, and would pass for a very satisfactory view. Mr. Wilder does not claim that they are first-class, but that they are good under the circumstances, and so they are.

### REPORT OF THE COMMITTEE ON DRY PLATES.\*

THE committee appointed at the meeting last May, to examine and report upon the durability of a latent image on tannin plates, have the honor to present the following report:

Before describing their investigations and the results, your committee beg leave to recall to the minds of the members, the circumstances which led to their appointment.

There had appeared in the April number of the *Photographer*, a paper by Mr. M. Carey Lea, on the "Spontaneous Resensitizing of Iodide of Silver." In this paper, Mr. Lea detailed certain experiments which he

\* Read before the Philadelphia Photographic Society, February 6th, 1867.



thought warranted the conclusion that "*pure iodide of silver will spontaneously recover its sensitiveness to light, without any extraneous agency whatever.*"

In referring to this paper, the chairman of your committee stated that he had repeated the experiments of Mr. Lea, modified so far as to substitute the processes ordinarily used by photographers, for those described by Mr. Lea, and with like results.

The experiments were recounted, and a plate exhibited. Doubts, however, appeared to exist in the minds of some of the members, as to the fading of a latent image on a tannin plate. In order to have the question definitively settled, the committee was appointed.

Your committee have directed their investigation solely to the iodide and bromide of silver, as they exist in tannin plates.

They met on an evening early in May, and prepared eight tannin plates. The following day, the light being uniform and steady, the plates were all exposed for thirty seconds, with a Harrison  $\frac{1}{4}$  plate lens, with a  $\frac{1}{2}$ -inch diaphragm.

No. 1 was developed immediately after the exposure. The result was an excellent negative.

No. 2 was developed at the end of thirty days. The result is good, but as the development was unduly forced, there is some evidence of fogging.

No. 3 was developed at the end of sixty days. The negative is strong, but there is more evidence of fogging.

No. 4 was developed at the end of ninety days. The plate too weak to print, and much fogged.

No. 5 developed at the end of six months. The plate clear, but worthless as a negative. It might have made an ambrotype.

No. 6 developed eight months after exposure. The image is scarcely discernible by transmitted light, but is easily traced when laid upon a black surface.

No. 7 was exposed a second time, at the end of eight months from the first exposure. The development, made immediately after the second exposure, produced a mere trace of the first, but an excellent negative of the second.

No. 8 was exposed twice, with a rather

longer interval than No. 7. The new exposure was made only over the centre of the plate, and, on development, produced a beautiful negative.

The latent image of the old exposure was so nearly faded out, that if the new one had been general, the old one would not have interfered with the distinctness of the negative.

No. 9 is a stereoscopic tannin plate, which had been exposed three years ago in a camera, which exposure had been overlooked and forgotten, and the plate put away among a number of unexposed dry-plates.

It was subsequently exposed under a negative, for the purpose of making a positive for a magic-lantern.

On development, the original exposure, though its effect had been very much diminished by time, became sufficiently visible to interfere with the delicate impression of the positive.

No. 10 is also a stereoscopic tannin plate, which, being partially protected by a yellow paper placed over the middle of the plate, was exposed during four hours to the direct rays of the sun.

The plate was then placed in a dark-box for four days. It was afterwards exposed in a camera for a minute, and immediately developed. The effect of the exposure in the camera is evident. The deposit of silver is greater on the part of the plate covered by the yellow paper, than elsewhere.

The general tendency of these experiments, is to show the necessity for the early development of tannin plates after exposure.

Thirty days, in the opinion of your committee, is the limit to which the development may be postponed.

The plates are all on hand for the inspection of the Society, and are, in themselves, a more eloquent result of the labors of your committee, than anything which they can add to this report.

All of which is respectfully submitted, by

ALEX. WILCOCKS,  
S. FISHER CORLIES,

*Committee.*

February 6, 1867.

## WHAT ARE YOU WORKING FOR?

WE are constantly receiving at this season, the renewals of our old subscribers, and with them, many warm letters of encouragement, approval, and well-wishing. Many of these letters are accompanied by examples of work, intended to show us the result of reading the *Photographer*. Of some of them we are proud, while of others we are ashamed, and we fear the latter class is much the largest. We look at them, and avow, within ourselves, that *it cannot be* that the producers of such pictures are attentive readers of our pages. If they are, they do not remember, and to such, we have a few general remarks to make in a private way. Do not take what we say, unkindly, and stop your subscription. We must occasionally give you a moral lesson, and if you want to meet us in a pleasanter mood, attend the meetings of our class of Troubled Photographers, and you will find us quite well disposed towards you, and ready to help you out of any trouble that may annoy you. The chief object for which we work in our editorial capacity, is to aid you and improve you in your profession as photographic artists.

*What are you working for? Have you an object?*

We presume you have, and that that object is to improve the quality of your work, and thus rise in your profession and increase your business. We doubt not but what this is the object of all of you, but you forget it and neglect it sometimes, as all men are prone to become careless in business. Now this is not proper and right. Practice, Application, Industry, Never-tiring, Study, *i. e.*, P-A-I-N-S, are the conditions under which you may attain your object. Without them, you cannot hope to do so. They must also be persisted in. Practise what you know to be right; apply yourself faithfully; industriously labor to excel; never tiring, even in time of trouble; study all the books and papers that are published about your business. Do not allow yourself to grow cold and careless. Be Ambitious; Constant; Thorough; Indefatigable; Vigilant; Earnest;—C the first letters of these, and B it.

Now you may look at one of the studies of Notman or Sarony, in the *Photographer*, throw down the number in despair, and say "*I never can make such work.*" That would be a very wrong way of accomplishing your object. Would it not? But believe us, we should have more hope of your final success, than we would of the man who declares he can be taught nothing. There are those who graduate from some machine-shop or cobbler's bench, that they have disgraced a few years perhaps, go to some of our prominent artists and spend a couple of weeks, and then, because they succeed in producing an image on a glass plate, declare they know everything, and have no need of a Journal, but we have nothing to say to such, for they do not take the *Photographer*, and our words would be lost. We know of such a one, only five minutes' walk from our office. We paid him a visit a few days ago, and, to test his knowledge (he did not know us), sat for a negative, first finding out, however, how *much* he knew. In his own estimation, he was *perfect*, but he "had a bad location," and thought "if he was on Arch Street, his room would be crowded." His first effort was a failure. Cause, "*you moved, sir,*" was his explanation. Second trial, also a failure; cause, the same, *i. e.*, he had washed the film off as we afterwards found. Finally, he gave us what he called "a very fine negative." We wish our readers could all see it. He said he had "great trouble in keeping on the films." We said, "Why do you not albumenize your plates?" "Why I never heard of such a thing. I would have no trouble if I could only get my plates once clean."

"Why do you not clean them with sulphuric acid and bichromate of potash?"

"Why, I never heard of such a thing."

"Do you take the *Philadelphia Photographer*?"

"I took it for six months, but could not find anything in it I did not know, so they advertised for numbers, and I sold mine and stopped it."

We hope, however, that we are only addressing those who are sincerely desirous of improving, and who too often forget what they know, and that *they have an object.*

We have had under our direction, those who never could make good photographers. Spilled baths, broken bottles, shattered evaporating dishes, and stained prints, were the rule, and not the exception. We knew one who actually exposed his plate, ran into the dark-room for something, forgot his sitter, and after a few moments returned to find the tears streaming down his faithful subject's cheeks, caused by the severe trial to the eyes during so long an exposure. His prints were half the time fixed before they were toned, and he was *continually* in a fix. A month of patient toil, and we advised him to go bore for oil, or something else.

But we do not think we are addressing any such. We believe that when a man subscribes for our Journal, that it is an evidence of intelligence, a willing desire to learn, to improve, and to accomplish the object we have stated. We believe that they are men who take a pride in the art they represent, and who will remove and overcome all obstacles until they are successful.

If this really be your object, kind reader, carry it through, and stick to it like Wenderoth's Star Varnish does to a negative, and all will become quite as clear and effective.

### COMPOSITION PHOTOGRAPHS.

MR. NOTMAN has sent us another set of 7 X 9 composition photographs, illustrating the arts and mysteries of "Trapping" in Canada. They are, in some respects, superior to those formerly sent illustrating Cariboo and Moose hunting.

"The Seals" is the gem of the set in pictorial effect and beauty. In it we have represented a huge pile of broken ice, the wily hunter climbing over it, gun in hand, and a group of seals at some distance from him, listening, with their liquid, human eyes staring, ready for a plunge into the ice reflecting water below. It hardly seems credible that such effects can be produced on the floor of a photographic glass-room. Nothing can be more successful and wonderful in photography.

"The Carcajou" ("Indian Devil"), represents one of these vicious animals caught in

the trap by the nose, and the trappers in the act of shooting it through the head. The expression of earnestness and solicitation depicted upon the faces of both man and beast is natural and perfect. The scene is in the snow-clad forest, and is wild enough.

"The Beavers" is much like the other in composition, substituting the beaver for the carcajou. The perspective is very successful in this one. Another picture, similar to these, is called "The Lynx." Here the trappers are deliberating as to which is the best way of disposing of their game, without injuring his beautiful fur.

"Beavers at Work," is a picture interesting to all. One of these industrious fellows is at work cutting down a tree, and another carrying branches to his winter quarters. The picture is admirably executed.

"The Old Trapper," is most faithfully represented with his accoutrements ready for active operation. He is 83 years old, and yet his eyes have a sharp, merry twinkle, that seem to say that he is good for many a hunt yet.

Mr. Notman seems to be all alone in this branch of photography on our side of the water. His pictures evince a great deal of care, toil, good taste, and artistic feeling. His ideas are to increase the *power* and popularity of photography. Yet, strange to say, the fruits of his labor and efforts are stolen from him, by those whom we would hardly think would do so.

We were not a little pleased, a few weeks ago, to find one of Mr. Notman's pictures of the Cariboo series ("Lost in the Snow"), reproduced by a wood-cut, in one of our weekly Pictorials, the editor of which is an amateur photographer of some merit and repute.

We turned to the letter-press to see what good tribute the editor had paid to Mr. Notman's skill, and were more than astonished to find no reference to him whatever, or to photography even. It is said to be "engraved from a study" by some one whose work, as an engraver, is much praised, and this is spoken of as being "entirely from Mr. —'s hand." We have no doubt the *photograph* was copied upon the wooden block by the aid of photography, and, after



that trifling job being done, this admirable engraver did *all the rest*. No doubt, as the editor remarks, "all connoisseurs will be pleased with the style of engraving, and the way in which the effects are produced with the least possible work;" but, alas! it is a pity they are not told what a mighty saving of labor *photography* was to the engraver in the present case.

Oh! poor Photography, when wilt thou have thy place among the arts, if thine own votaries slight thee, and pass by thy wondrous doings in silence?

A composition picture, of a different class, has been sent us by Mr. John L. Gibon, photographer, Chestnut Street, Philadelphia. It represents the celebrated trotting horse "Dexter," going at full speed (2.28), at Point Breeze Park.

The picture of the horse was made instantaneously, and the image enlarged by the solar camera. The photographs of the bystanders were then pasted in, the hotel and buildings painted in, and the whole copied and colored, making an excellent likeness of the horse, and a very attractive picture to the lovers of horseflesh.

A great deal of skill and good taste is evinced in the arrangement of the figures, and the whole shows the faithfulness of photography.

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### THE ZENTMAYER LENS.

MR. EDITOR: At the last stated meeting of the Philadelphia Photographic Society, the subject of the Zentmayer Lens was discussed by many of the gentlemen present, but a further consideration of the same was deferred until the meeting in March.

On that evening, I mentioned the result of some trials I had made, with what is generally known as an 8-inch Zentmayer lens, together with a No. 1 Dallmeyer triplet. The similarity in focal length between the two lenses appeared to make the trial a very fair comparison of their merits. The view selected was from the upper story of my house, looking north; a subject frequently experimented on before, so that

every brick and imperfect shingle was known, also the many difficulties to be apprehended.

The smallest diaphragm of each lens was used in both cases, focussing in the centre part of the plate, with the large opening, to gain a greater amount of light. The negatives taken were  $6\frac{1}{2} \times 8\frac{1}{2}$ .

On comparing the negatives, the following facts may be mentioned:

In the Dallmeyer lens, the plate was slightly sharper and more brilliant in the centre of the picture, say about  $3\frac{1}{2}$  in. circle of light, but was wanting in extreme sharpness in a circle of 5 inches; from that point the want of definition was very marked; time of exposure, 30 seconds.

The negative taken with the Zentmayer lens, compared so favorably with the Dallmeyer, that several persons have expressed doubt as to which was the sharpest in the centre of the plate. In my judgment, the extreme brilliancy of the centre of the plate was wanting, but it surpassed the Dallmeyer generally in uniform definition, being sharp to the edges; exposure, 1 minute. In both cases the sun was shining brightly.

The focal lengths of the Zentmayer lens used, and the Dallmeyer No. 1, was in the proportion of 60 to 61. Should the Zentmayer be spoken of as 8-inch focus, the Dallmeyer would be 7.87 of an inch.

Diaphragm used in the Dallmeyer lens, 0.23; equivalent to the thirty-fourth part of its focal length. Diaphragm used in Zentmayer lens, 0.20; equivalent to the fortieth part of its focal length. Quantity of light passing through the stop in Dallmeyer, 529; Zentmayer, 400.

Much has been said in regard to the difference of the chemical and visual foci of the Zentmayer lens. Without desiring to take up the scientific discussion of this subject, I will say, that for all practical purposes, the foci coincide; the proof being, that in the many pictures I have made with the lens, no want of sharpness could be perceived, and no re-adjustment after focussing was necessary.

For photographing architectural subjects, where freedom from distortion of lines, sharpness, and *wide angles*, is required, I do not think that the Zentmayer lens has an

equal. The depth of focus is also unsurpassed.\* The time of exposure is what might be called short, for a lens used with so small a diaphragm. As a landscape lens it is wanting in one respect. Often when photographing in the field, it is necessary to use a large diaphragm, either on account of slight illumination or quick exposures in taking groups, &c. In this combination, the largest diaphragms that can be used, are from  $\frac{1}{36}$  to  $\frac{1}{40}$  of an inch of the focal length.

I am aware, in comparing these lenses, that they are of entirely different construction; also, that the focal length and size of stops are not exactly alike.

This Dallmeyer No. 1, although it is only guaranteed to cover a  $5 \times 7$  plate, is, in most respects, the best lens of its kind I have ever used. Knowing its good qualities, the success of the Zentmayer seems the greater.

The experiments described are reported, not with the desire of injuring the Dallmeyer No. 1, but that others may consider the good points, and give the Zentmayer lens a fair trial.

JNO. C. BROWNE.

February 16th, 1867.

### AMERICAN CARBON PRINTS.

If our readers feel as we feel at the moment of this writing, surprise and delight will be theirs. We have all read and heard a great deal about Carbon processes and Carbon prints, and some of us have been privileged to see some of the beautiful results of Mr. Swan's manipulations. We have been told that when a perfect and regular carbon process shall have been secured, that the absolute permanency of photographic prints will be certain, and we have long believed

it. We have only been waiting for Mr. Swan to send us his prepared tissue, in order that we might go ahead and try his process. Almost three years have elapsed, and we still kept hoping, without being gratified. Occasionally we looked over our collections of pictures, and found, here and there, a precious gem fading and spotted. We turned away from them with the feeling of disgust that possesses one when he opens his rooms in the morning, finds his tanks overflowing and the water running down through the ceiling. Oh! what a sigh was there for carbon—carbon—CARBON—and carbon we have at last. Mr. Frank Rowell, one of our enterprising subscribers in Boston, set himself to work out the problem, and began his experiments about six months ago. We were unaware of this until on the morning of the 14th of February, we entered our office and found a collection of Mr. Rowell's prints lying upon our table. Our readers can imagine our surprise, and we can probably imagine theirs when we tell them this. We think we have never made an announcement in our pages that gave us more pleasure and real patriotic pride than this, *that carbon prints have been successfully and beautifully made in America*. It is something to be proud of. But, before proceeding further, we must insert the following very modest letter which accompanied the prints:

BOSTON, February 10th, 1867.

MR. EDWARD L. WILSON,

Editor of the Philadelphia Photographer.

DEAR SIR: I take the liberty of sending you, herewith, a few specimens of carbon photographs, such as I am now making, day by day, and the first, I believe, that have been made in this country. With some slight modifications, they are produced by following the published formula of Mr. Swan, but the tissue which I use, is made by a process hitherto unknown, and entirely distinct from that gentleman's. To the perfection of my tissue, I think I mainly owe my success. The process for making the tissue, for which patents have been issued, is very simple, cheap, and effective, and though it may be equalled, I feel quite confident it cannot be surpassed in any one or all the essential qualities for insuring

\* The angle of this lens is so great,  $90^\circ$ , that it can be used for photographing objects before considered impossible. Foreexample: The Philadelphia Bank is so situated, that no lens could be found of sufficient angle to get the whole building on the plate. With Mr. Zentmayer's 7-inch lens, a beautiful negative,  $8 \times 10$ , was made by Mr. Willard in twenty seconds, perfectly sharp and well illuminated.

the best results, for its homogeneity is absolutely perfect. In a few days, I shall be prepared to answer orders for tissue, and all the necessary appliances connected with its use, together with whatever instructions may be necessary.

The carbon prints (though I have not advertised them), have already attracted considerable attention here, and I have received orders for tissue from several of the leading photographers in this and other New England cities. Amongst others, the celebrated photographic artist, J. W. Black, Esq., is now making preparations to commence printing his beautiful negatives in carbon. The prints give unqualified satisfaction to all capable of judging, and are pronounced more perfect and more beautiful than those made with silver, while their ABSOLUTE PERMANENCY superadds a value to them, which can never be approached by silver prints, for we all know that the latter carry with them the elements of certain, and more or less rapid destruction.

So far as I can at present judge, carbon pictures can be made at a cost rather less than silver, and I would remark that I find the printing, developing, and all the other manipulatory operations, more certain and more easily accomplished, as well as less complicated and less difficult than the old process of printing, toning, and fixing silver prints.

I feel that our fraternity, and the public generally, owe a large debt of gratitude to Mr. Swan, for his ingenious invention, for he has thus given to photography a dignity and REALITY, an elevated character, which it never could otherwise have obtained. Our photographs, *no longer fugitive, ephemeral things*, will hereafter be as permanent as the engravings which adorn the walls of our dwellings; and, *changelings no more*, they will be as enduring as the printed pages in the books of our libraries, for, henceforth, they will be made of the same unfading, unchangeable, and indestructible material.

Trusting that you will find the accompanying specimens interesting, I am, with kindest regards, very sincerely yours,

FRANK ROWELL,  
25 Winter Street, Boston.

Mr. Rowell has so cleverly put the advantages of carbon printing, that we need hardly say more. As his process is distinct from Mr. Swan's, we really have an American carbon process of our own. The specimens sent us much resemble Mr. Swan's, and are extremely beautiful and delicate. We have duplicates from several negatives, which show the regularity and certainty of Mr. Rowell's process. In an *early* number of the *Photographer*, we shall present our readers with a specimen print. *Mr. Rowell is already at work on them, and hopes to have them ready for our next issue.* So certain is his process, that any number of prints can be made with greater ease than by silver printing.

When the picture appears, we shall state further the advantages of carbon printing, and full instructions for the practice of it. We now leave you in your wonder, and go to try our hand upon some of the prepared tissue sent us by Mr. Rowell. Alas! for thee, albumen paper and nitrate of silver, thy days are numbered.

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### AN HOUR WITH MR. SARONY— OUR PICTURE.

OUR readers have heard a great deal about Mr. Sarony, but perhaps many of them have had no practical or substantial evidence of what he is, and what he can do. As we have said before, Mr. Sarony is an artist-photographer, and it has been our pleasure recently to spend an hour with him, we acting as sitter and examiner and exhibitor, and he as the poser.

This was done in order that what follows might be written from *experience*, and not from hearsay.

The editorial fraternity, generally, are a set of literary Thomases. They must see and feel. They cannot believe anything they hear. They cannot take anybody's word. They must *know* what they place on record, and then stand by it if it is right.

And as it is our business to find out, feel, see, and know all that is valuable and interesting to our subscribers, we spent this hour with Mr. Sarony in order, personally, to satisfy ourselves as to the merits of his posing machine. We saw it lying in pieces



upon the floor, and in a few moments it was in order to receive our awkward person and perform its functions, while Mr. Sarony posed us and took our picture. We confess to having felt the usual fear that we should fall backwards, if we reposed too much confidence in it, but our skepticism was soon banished. We found that the harder we pressed against it the more at our ease we became. Both the head, back, arms, sides, and in fact the whole person, were at perfect rest and repose. We tried it in every way, and in every case found it permanent and able to bear anything placed against it by the sitter. The table, chair, and cabinet attachments were all tried, and with the same pleasurable success. After our first trial of it we feared no calamity. Visions of poor photographers who had first pinched their fingers with the old (un)rest, and then poisoned them with gold and cyanide; young ladies with torn waterfalls and ruined dresses; little children with bruised heads and full of fright, caused by the sudden giving way of some treacherous screw, or other part of the old head-rest, all vanished.

We were comfortable and could keep still an hour in its pleasant embrace. The sensation is almost indescribable. It must be experienced to be fully realized.

We have undergone the excruciating experience of a ride in an overland stage-coach over mountain top, and down its rockysides, expecting an overturn at every rod; the feeling of comfort and safety experienced in riding in one of the palace cars of the Chicago and Northwestern Railroad was quite different. So is leaning against a slender shadow, different from resting against one of Sarony's posing machines.

We have all read of the tortures of the Inquisition, and can imagine the difference between the feelings of the tortured, and of those who narrowly escaped it. We can then understand the difference between trying to keep one's body still and something behind us from toppling over, and leaning against something we cannot move, which entirely releases us from any concern as to what is going on behind us, and which keeps *us* still. Sarony's Rest secures this unconcern and freedom.

Those of you who have taken laughing

gas to ease the pangs of tooth-pulling, know what an improvement it is upon the old plan. There are persons who have the same dread of being photographed that they have of parting friendship with their decayed organs of dentition. For those tender-hearted and nervous ones we have words of comfort and consolation. With Mr. Sarony's machine you may feel so at ease as to forget you are having a picture taken. Instead of an expression of constraint and nervous fear and a repetition of your nose and eyes, per consequence, you shall assume a natural and pleasing air of comfort and grace.

To the working photographer we would say, if you can, secure one of Mr. Sarony's posing machines.

It is complicated, yet simple and easy to work. It suggests positions as profusely as a kaleidoscope does colors and shapes, and the effects that it is possible to secure with it, are extremely beautiful and pleasing.

We need no better proof of this than the beautiful studies which appear with the present number. For them, our readers are indebted to the skill and taste of Mr. Sarony, his apparatus, his excellent albumen paper, and his printing formulæ, which he gives away.

The prints were made from negatives made by Mr. Sarony in England. The negatives are in themselves a curiosity. They are exceedingly thin, and are printed entirely in the shade. Eight positions are, in most cases, made upon one plate; and our readers will receive the half of a sheet from one of these plates. Those who have four positions of the same person, will notice the changes in position that can be rapidly made in using Mr. Sarony's machine. With the old arrangement it would be almost impossible to secure eight positions before the film became dry and horny. The tone of these prints is peculiar to Mr. Sarony's paper, though any desired tone can be secured. Although his price is higher than some others, every sheet and every corner of a sheet will be found good, so that it is economical to use it in preference.

We have used these studies because we thought they would benefit our readers, and probably awaken them to the importance and value of securing such pictures fre-

quently in numbers, and of studying their good points and trying to imitate them. A good, earnest photographer should always have his eyes about him, watching for new positions. If he looks over a collection of engravings let him examine the figures with an eye to business; if he glances at the show-cases of a neighbor, let him do the same. We would be glad if we could place one of these new machines in the hands of all of our subscribers. We think it would improve the standard of photographic work immensely, and, at the same time, save a great amount of trial and vexation to the fraternity. We know that circumstances will compel many of our photographers to do without Mr. Sarony's machine, but they can buy his studies, and improve themselves in that way.

Several of the machines have been delivered, and there is but one opinion concerning them. They are an immense help to the operator, and will every day grow more and more in favor.

Through the courtesy of Messrs. J. Gurney & Son, Broadway, New York, we were privileged to make our experiments at their rooms. We saw their operator using the old-fashioned apparatus in one room, at the time, and became thoroughly convinced of its insufficiency compared with the other. Messrs. Gurney afforded us every facility, granting us the attendance of their obliging operators, as well as the use of their rooms and chemicals. We have taken occasion heretofore to speak of their excellent work. They are doing a large business in the new size and in everything else. They confine themselves to no particular branch, but make everything.

### Letter from Dr. Vogel.

MR. EDWARD L. WILSON,  
Editor Philadelphia Photographer.

MY DEAR SIR: I am not a little surprised to see that the publisher of Humphrey's Journal mentions my name as a contributor to that journal. I am compelled to state that I have no connection whatever with it, and that the *Philadelphia Photographer* is the only American journal for which I furnish original articles.

Yours, very truly, DR. H. VOGEL.

BERLIN, January 27, 1867.

### GERMAN CORRESPONDENCE.

#### PHOTOGRAPHIC NOVELTIES IN GERMANY.

*Papier Leptographic*—On the quantity of silver used in the positive process—*Collodion for interiors*—Curious cause of a spot—*Vogel's method of testing silver solutions*—*Grasshof's negative and positive varnish*.

I WROTE to you in my last letter about the leptographic paper; since then the Photographic Society here has received samples of it from our friend, Mr. Romain Talbot, who sent them after frequent inquiry, but mentioned at the same time that the paper did not bear transporting, and so it did appear on trial. The sample which we received, instead of copying three times as quick as albumen paper, as the Société Leptographic asserts in their circular, required about three times more time than ordinary paper, and besides, the proofs were hard, although very soft negatives were used.

In the meantime a second Leptographic Society has been formed, and probably the price of the article will be reduced.

In judging of such an article, it is evidently of importance to know what quantity of the salt of silver is necessary to sensitize a sheet of paper. Many experiments on this subject have been made; Spiller stated the quantity absorbed by a sheet of paper as fifty grains; Hardwich states only thirty grains; Davanne, forty grains; in order to come to a definite result, my assistant, Mr. Meicke, made a series of experiments under my superintendence, the result of which is curious enough. We took 500 cubiccentimetres of bath solution containing 62.5 grains of nitrate of silver; with this we silvered sixteen or twenty sheets of 18 × 20 inch albumen paper of Beyrich's make. Afterwards the volume of the remaining solution was determined, as also by quantitative analysis the amount of nitrate of silver remaining in the bath; we then brought the bulk of the bath back to its standard of 500 cubic centimetres, and added sufficient nitrate of silver to make its strength 62.5 grains, as in the first instance, and sensitized again sixteen to twenty sheets of paper with it. In this way the bath was used for five experiments, replacing the loss

in volume and nitrate of silver after each experiment. Here is the result:

	No. of sheets.	Vol. of the Bath after silvering. Cubic Centim.	Percentage of silver af- ter silvering.	Silver used per sheet of paper.
1st Exper't,	16	275	7.15	2.615
2d "	20	243	5.5	2.46
3d "	18½	294	6.3	2.38
4th "	20	280	8	2.005
5th "	20	268	7.1	2.175

(It is possible that an error has crept in the fourth experiment, as I suspect that one of my scholars made himself busy about the bath.) The other experiments were made with the utmost care, and the result does not admit of any doubt. It is a curious fact, that the consumption of silver is less in an old, strengthened bath, than in a new one containing the same percentage of nitrate of silver. The figures in the fourth column show that with the fresh bath the amount of silver consumed per sheet of paper was 2.615 grammes; after the first strengthening the quantity consumed is already reduced to 2.46, and after strengthening it five times it only amounts to 2.175, consequently nearly ½ gramme\* less per sheet than in the first experiment with a new bath. This is of importance in a pecuniary view for an establishment where many sheets of paper are used in a day.

What is now the cause that in an old strengthened bath the amount of silver consumed is less than in a new one? I suppose that the foreign salts exercised an influence here. With every sheet of paper there is formed by the process of silvering, nitrate of ammonia, provided the paper has been salted with chloride of ammonia, and this remains in the bath. I suppose, therefore, that a bath which has been treated in the beginning with nitrate of ammonia will work more economically in the positive printing process than a pure nitrate of silver bath, and I hope to test this experimentally ere long. At present I would recommend to use old strengthened baths in preference to new ones. Of course it is necessary to examine from time to time what amount of silver the bath contains; for this purpose the argentometer at present in use is but ill-adapted, as the results which this instru-

ment gives are by no means reliable; for this purpose I recommend my new and simple method of testing the solution of nitrate of silver with iodide of potassium (volumetric), and I annex a full description of the process.

This method is based on the peculiar action of iodide of potassium on solutions of silver on the one side and nitric acid on the other. When iodide of potassium is added to solutions of silver, yellow iodide of silver is precipitated. When iodide of potassium is added to a mixture of diluted starch paste and nitric acid, containing a small portion of nitrous acid, iodine is instantly liberated, which gives to the whole fluid a deep blue color.

When a solution of iodide of potassium is added to a mixture of silver solution with nitric acid and starch, both processes will take place simultaneously. Iodide of silver is formed, which precipitates, and free iodine, which in the presence of a solution of starch gives a blue color to the fluid, but so long as the solution contains free salt of silver the blue color disappears on shaking, and the mixture appears pure yellow. If now iodide of potassium is added, drop by drop, a point will soon be reached, when the blue color no longer disappears, after shaking, but remains; this indicates that all the free silver salt has been precipitated, and by the quantity of iodide of potassium necessary to produce this result, the quantity of precipitated silver can easily be determined. The point when all the silver has been precipitated can be determined with surprising exactness by the blue color, as a single drop of iodide of potassium in excess suffices to give to the fluid an intense and lasting blue color.

The conserve of nitrate of silver is of course further dependent on the quantity of salt in the paper, the time of floating, and the manner of removing the paper from the bath. We have in our experiments taken all these circumstances into account; the amount of salt in the paper was 2 per cent.

We spoke recently in our Photographic Society of the taking of interiors; it is, as you know, very difficult to obtain a harmoniously exposed plate; either the windows are solarized, or the dark corners do not show

\* 1 gramme = 15.4 grains Troy.



a trace of detail. The main thing is always to make a long exposure, but at the same time it is certain that the composition of the collodion is of importance. The more bromine the collodion contains (up to a certain limit) the more sensitive will it be for dark shadows, and the less sensitive will it be for high lights; therefore for interiors where we find high lights with deep shadows, a collodion rich in bromine will be the most suitable.

Mr. Creifeld recommends—

1 part bromine,  
1 part iodide of cadmium,  
Dissolved in  
30 parts of alcohol.

Filtered, and one part of the filtrate added to three parts of plain collodion containing 2 per cent. of cotton. This collodion is excellent for interiors; the exposure should be as long as possible, and the plate should be developed with a strong developer.

5 parts protosulphate of iron,  
3 parts glacial acetic acid,  
100 parts water.

Intensified, without washing the iron off, with pyro and nitrate of silver, and fixed with cyanide of potassium. Should the plate appear veiled, this can be diminished by a very dilute solution of chloride of gold. A very great drawback to interiors is the round white spots, which very frequently show themselves next to the windows; these unfortunately cannot be avoided, for they originate from the optical apparatus, which by reason of reflection on the surfaces of the lenses produces secondary pictures, which, however, become visible only after very long exposure, and when they are reflected next to the main image on a dark part of the picture.

I must mention here another kind of spot, that has troubled me for many months; the spot appeared always on large plates nearly in the centre, and appeared dark black in the negative. At first I blamed the plate-holder, and supposed that it was too narrow, and that the shutter came in contact with the silver solution, adhering to the plates; the holder was altered, but the spot

remained the same; curious enough, it never appeared on small plates. After much guessing, I at last hit on the true cause. I sensitize my large plates in a flat glass dish, collodion side down; in the centre of this dish I discovered a small protuberance, which pressed against the collodion film, and our friend, M. Carey Lea, has shown that a spot so pressed upon, will turn black on development. Mr. Lea's discovery is therefore more important than many would suppose at first; in this way, letters can be produced, and the name of the artist can be produced on the negative.

My friend Grasshof has given me the formula for a varnish for negatives and positives, and I can recommend it to you as excellent:

5 parts of finely powdered sandarac are dissolved in 20 parts of absolute alcohol, by frequent shaking; 2 parts of Venetian turpentine are then added, and the mixture is again well shaken; finally add  $1\frac{1}{2}$  parts of oil of lavender and  $1\frac{1}{2}$  parts camphor; after letting it settle for a few days, the clear portion is poured off. If the varnish should not turn out brilliant enough,  $1\frac{1}{2}$  to 1 part more sandarac is added.

For positive pictures this varnish is laid on with a coarse goat's-hair brush; the paste-board does not suffer from this varnish in the least, and it dries in a few minutes. When the layer of albumen is very thin, the varnish sometimes will strike through; to prevent this, the picture should be covered first with a solution of gelatine. Pictures colored with aniline cannot be varnished with this varnish. It is excellent as a negative varnish; can be used cold, and only where it is to be used at once the negative should be slightly warmed; as it takes lead-pencil lines well, it is well adapted for retouching.

All our photographers here are busy with preparations for the Paris Exhibition, but they are almost in despair on account of the miserable weather; for four weeks we have not seen the sun, and the prospect is, that this state of affairs will continue for some time longer.

Yours, very truly,  
DR. H. VOGEL.

BERLIN, January 27, 1867.

## LEPTOGRAPHIC PAPER, AND HOW TO MAKE IT.

1st. Make a solution as follows:

Gum Kowrie, . . .	1 ounce.
Sulph. Ether, conc., . . .	2 "
Alcohol, 95 per cent., . . .	1 "

After the gum is all dissolved and settled, decant the solution, and float heavy Saxe paper on it for one minute.

2d. After the paper is dry, float it on the following solution for one minute:

Water, . . .	7 ounces.
Albumen, . . .	3 "

Let it dry by the stove, but be careful not to have any dust about.

3d. After it is dry, float it for one minute on the collodio-chloride collodion, as published in the *Photographic Mosaics* for 1866. The floating must be done in the dark-room, and, when the paper is dry, it must be kept in the dark for future use.

Solution No. 2 keeps the paper from showing those white specks spoken of in the *Philadelphia Photographer* for February, 1867.

X.

NEW YORK, February 10, 1867.

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## PHOTOGRAPHIC SUMMARY.

BY M. CAREY LEA.

ENGLAND.

*Focussing Portraits.*—The question raised by Mr. Claudet, as to whether a single portion of the face should be accurately focussed or not, has excited wide attention and very earnest discussion. The point was, by many, at first a good deal misapprehended: it was supposed that his idea was to do away with sharp lines, and substitute an indistinct picture, whereas, his object was solely to distribute evenly the definition, and have no part of the image indistinct.

This he proposed to accomplish by altering the focus during the exposure. But, to do this properly, required, first, lenses mounted in an unusual way; and, second, great attention, dexterity, and experience.

The question then naturally arose, whether lenses could not be constructed that would effect this of themselves. Suppose a lens so constructed, that no one point should be in

perfect focus, but that objects a little further and nearer should be in equally good focus, that would accomplish the same object as aimed at by Mr. Claudet.

Opticians at first objected strongly to making such lenses. The peculiarity was to be, that spherical aberration should not be wholly corrected; in other words, that a property which they had been all their lives striving to remove, as far as possible, should be intentionally introduced.

Dallmeyer has constructed such objectives; they can be used in the ordinary way, or can have spherical aberration introduced by altering the position of the back lens. By some, these lenses have been highly praised, by others, their advantage has been denied.

It is well known to most photographers, that artists have always blamed photographic pictures as being *too sharp*. While it is impossible to give adhesion to this point of view, it is certainly true that many photographs represent with fearful fidelity and even exaggeration, every slightest defect in the complexion, and if a general correctness or distribution of focus can be secured, we can afford to dispense with a microscopic exactness in the rendition of one particular plane.

Claudet denies that the Dallmeyer lens gives results as good as moving the back lens during exposure.

ITALY.

*Collodion.*—Luigi Cocco strongly recommends a collodion prepared with a preponderating quantity of alcohol, remarking, however, that the pyroxyline must be suitable. Collodion with much alcohol, he observes, holds the saline substances with which it is sensitized, better in solution,—the collodion keeps better, the silver-bath and the developer penetrate the film better, the silver precipitate is finer, and deposits better. On the other hand, in a mixture with a large proportion of ether, pyroxyline dissolves to an oily varnish, water penetrates it with difficulty, wherefore the chemical reactions take place more slowly.

For this collodion with much alcohol, pyroxyline prepared with strong acids at a low temperature, is peculiarly unsuitable. Cocco gives the following formula:

Let 7\* ounces (Troy weight, 480 grains), of finely powdered saltpetre, be placed in a not too small glass vessel, and be warmed to about 35° C. (95° F.) Add 2 fluid ounces of nitric acid sp. gr., 1.42; stir well up with a glass rod, and add, with constant stirring, 14 fluid ounces of sulphuric acid, sp. gr. 1.82. Stir till a uniform mixture is obtained, and as soon as the temperature falls to 70° C. (158° F.), dip in 1 ounce of cotton previously warmed to 45° C. (113° F.) Stir up well to prevent the evolution of orange fumes, which indicate decomposition. Leave in for fifteen minutes, then lift out, squeeze out the acids rapidly, and plunge into a quantity of water; spread out, wash well, change the water five times; leave in the last for twelve hours, then wash with one ounce of ammonia to 40 of water, wash again and dry.

With absolute alcohol, this pyroxyline, which is soft, tender, and yellowish, makes a half liquid paste. On the addition of one-fourth ether, it dissolves to a milky colloid, that clears by salting.

The best proportions are—

Pyroxyline,	. . .	115 grains.
Alcohol, absolute,	. . .	5 ounces.
Ether,	. . .	5 "

To which 8 ounces of alcohol of 95 per cent. are added with the salting.—*Camera Oscura.*

#### FRANCE.

*Photographic Paper.*—Vidal has taken out a patent for producing a sensible silver-paper, which, it is asserted, keeps indefinitely. The process consists in taking albumenized paper which has been rendered insoluble, such as is now to be had, and exposing it to the vapors of fuming chlorhydric acid. It is then immediately placed on the nitrate bath.

[This process is liable to several objections. The vapors of the acid are extremely prejudicial to health, and the bath becomes immediately acid by the nitric acid disengaged.]—*Bul. de la Soc. Chimique.*

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\* The weights are approximate in quantity, and perfectly correct in proportion.

## PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

THE usual meeting of the Philadelphia Photographic Society, was held on Wednesday evening, February 6th.

The chair was occupied by the President, Mr. Coleman Sellers, and an unusual number of members were present.

The meeting was an interesting one, and was continued until after ten o'clock.

Dr. Wilcocks, Chairman of the Committee on Dry Plates, read the committee's valuable and interesting report, as found on page 76. The report was accompanied by the negatives described, which were exceedingly interesting and curious. The conclusions of the committee seem to be at variance with the opinion of many, who *ardently* advocate the different dry processes (especially the *Beer* process). The general assertion has been, that no matter how long a time may intervene between the exposure and the development, the result would be equally satisfactory. We have always held the opinion entertained by the committee, which is most certainly confirmed by the negatives shown by them. This robs the dry method of one of its chief claims to the preference. In these days of glycerine, we need not use a process, uncertain at best, to keep our negatives a short time before development can take place.

Mr. Corlies exhibited a very excellent tannin plate, which was prepared five years before exposure. Also a whole-plate tannin negative, developed one year after exposure.

All the negatives exhibited by the committee, were examined with a great deal of interest.

The President thought the report was one of great value, and thanked the committee for their experiments and care. Such reports always added interest to the meetings, and were of great value to science.

Mr. Borda took exception to the remarks upon the report of the committee on the Zentmayer lens, in the February issue of the *Photographer*, by the editor. He thought he had made a mistake, as negatives were shown, and prints, which all present at the meeting examined and commented upon,



and that much of the information wanted by Mr. Wilson had been given verbally by the committee.

The President remarked that Mr. Wilson, in making his strictures in his editorial capacity (and he was bound, as an independent journalist, to preserve his individuality and not be biased by his feelings as a member of the Society), felt, as no doubt many of his readers felt when they had examined the report, that it was not so exhaustive as they had hoped for. That at the time he had appointed the committee, he had felt, and still feels sure he was committing the examination to gentlemen eminently well qualified to make an important investigation. That he thought the committee had not done themselves justice in presenting the report, which says, in itself, it is only partial, and allowing it to be accepted and published as a full report. That it would be well for some standard to be adopted by the Society in reference to the form of reports, and he would state that the reports of the Sub-committee of Science and Art, at the Franklin Institute, were generally managed in some such way as this: Assuming, as an example, that the Zentmayer lens had been referred to them, their report would state—

1st. Their appointment to examine the lenses for photographic purposes, invented and made by J. Zentmayer.

2d. Describe the lens in reference to its peculiarities, even if it be ever so well known previously, as, for instance: this lens is composed of two deep meniscus lenses placed with their concave surfaces towards each other, but with their outer surfaces concentric, the centre of the first lens being smaller than the back one in the combination, but both lenses being made of one and the same kind of glass, &c.

3d. State what the inventor claims as its peculiar advantages.

4th. The opinion of the committee regarding the lens, and in reference to the claim of advantages by the inventor, &c.

In general terms, a committee need never be afraid of making their report too voluminous, unless they go into theoretical speculation, and, as some have done, steal from the Encyclopædia pages in reference to the progress of the art.

Mr. Borda said that some of the committee had proposed making the report more extended, but that he was clearly of the opinion that the shorter it could be made, the better, provided it fully expressed the result of the experiments, and the conclusion at which they had arrived. The merits were stated as comparative, the comparison being with some well-known standard, and he thought that it was better to compare it to some well-known instrument, than to use adjectives, and say it was very sharp, or the definition very magnificent, or some other superlative expression.

Mr. Davids remarked that he, as a member of the committee, had made repeated experiments with the lens, in company with Dr. Wilcocks, but, as the whole of the committee could not meet to experiment together, it was thought best to make a report which could be indorsed by the whole of the committee, and he would therefore suggest that the committee be instructed to experiment further, and report at the April meeting of the Society.

Mr. Moran thought the report was, in some points, quite contradictory. That they reported, after saying that the "depth of focus was equal, if not superior to the lenses which were brought into comparison," that, "in definition, it was superior." As definition depended, in a great measure, upon the depth of focus, he thought a mistake had been made by the committee in reporting as stated.

The President said, owing to the remarks by the editor of the *Photographer*, he would inquire of Dr. Wilcocks, if the committee had, in their experiments, turned their attention to the coincidence of the visual with the chemical focus?

Mr. Borda replied, that, after receiving instructions from Mr. Zentmayer, as to focusing, they found no difference in the two foci. Mr. Zentmayer's plan was to get the most distant object sharp, using the largest stop, and then exposing with the middle one, which was in size, one-fortieth the focal length of the combination used.

The President asked if the committee were acquainted with Mr. Zentmayer's experiments in testing the coincidence of the foci. If they were not, he would say, that

Mr. Zentmayer had used, as a focussing screen, plate-glass not ground. That he focussed on this with a compound microscope. The microscope being in focus, with diamond scratches on the glass, he had carefully tested the camera, to be sure that the sensitive films corresponded in position with the focussing side of the plate-glass. He then, having focussed with the greatest care, made a negative, and found it sharp; then, without focussing again, he moved the plane of the film further from the lens, and made a new negative; then moved it closer to the lens than it was at first, and made a negative of the same object. Tried similar experiments with more and less movement in each direction from the plane of visual focus, and the comparison of the negatives showed conclusively that the sharpest negatives were obtained on the plane of the sharpest visual focus.

Mr. Wilson thought it but just to the committee, to say that, not being present at the last meeting of the Society, on account of absence from the city, and a record of the fact of negatives and prints having been shown, not being made in the minutes, he was unable to explain to the readers of the *Photographer*, more than the committee made plain in their report. As the editor of the *Photographer*, he had to see with the eyes of the subscribers as much as possible, and as it were he as one at a distance reading the proceedings of the Society. The majority of the subscribers were at a distance. He knew, from correspondence with many of them, that they were anxiously awaiting the report of this committee, in order to learn all about the Zentmayer lens. That the committee had told them very little about it, and, speaking as it were, with the mouths of these distant members of the craft, he had made the remarks so much commented upon. He was glad at least to know that they had had the effect of adding to the interest of the meeting, and that the committee were about to make further experiments. It was an *American lens* and a *Philadelphia lens*, and he thought this Society should be the proper body to explain its merits and advantages *fully*.

It was resolved that the Zentmayer lens be the subject for discussion at the next

meeting, and that the Secretary employ a phonographic reporter, and advertise the meeting. On motion, adjourned.

### NEW YORK CORRESPONDENCE.

It is fashionable to be dull nowadays, for everything is dull: the weather is dull—this every photographer knows; business is dull—this every merchant and manufacturer knows; consequently, partaking of the universal dulness, this letter will be dull. As to the reason there cannot be any two opinions (outside of the writer's stupidity), and the reason is, that the last meeting of the American Photographical Society was the annual gathering, and many things had to be done: officers for the coming year must be elected; the claims of rival and aspiring candidates for the honors must be adjusted and arranged; and in case of an opposition, somebody must be defeated and disappointed, as well as somebody victorious and elated. By this I would not have your readers suppose we had any fracas for high honors, any primary or town meeting operations; not a bit of it; all was harmony in this; the old officers were unanimously re-elected, although the President and Recording Secretary did rebel; such treasonable action on their part was put down in a most summary manner by their re-election as stated. A most just rebuke, and well did they deserve it, for they have performed their duties most properly and well, therefore the mere intimation of their refusal to serve was treasonable, and against the interests of the Society.

The officers for 1867 are: *President*, Lewis N. Rutherford, Esq.; *Vice-Presidents*, Prof. John W. Draper, Prof. Charles A. Joy, and Abram Bogardus, Esq.; *Recording Secretary*, Oscar G. Mason, Esq.; *Treasurer*, H. I. Newton, Esq.; *Corresponding Secretary*, Charles Wager Hull.

The reports of the various officers were made, and most of the evening was of necessity spent in the consideration of the past year, and of plans for the next, which in many ways promises more than any of its predecessors.

There was considerable discussion among

several of the members, as to the value of a substratum of albumen. The president stated that he wished to retract the opinion expressed by him at the last meeting, that such treatment of the plate, before coating with the collodion, made it work slower; he was now of the contrary opinion from recent experiment, at least he felt well assured in stating that it did not render the plate any less sensitive. He was troubled with all manner of small spots and comets, as we style them; this was an insufferable objection in his case, as his negatives were of the heavenly bodies, and when they had to be magnified the spots became a most serious matter; but for work not to be so treated, he found no objection to its use. He stated that it was not improved by filtering. He thought that it was owing to the coagulation of the albumen. He was of the opinion that one part of albumen to twenty parts of water was preferable to a solution richer in albumen.

Mr. Chapman said, that since the last meeting he had made some experiments in this method of working, and gave his conclusions as follows: If a *fresh* solution of equal parts of water and albumen is used, the sensitiveness of the plate is *injured*. He tried, comparatively with this, an old solution, several months old, of one ounce of albumen, twelve ounces of water, and two drachms of ammonia, and he was satisfied that in no degree was the sensitiveness interfered with. He thought the best way to put the albumen on the plate, was to allow the plate to dry after simple washing, then on the dry plate pour enough to cover it as you would of collodion, and with a broad flat brush spread it evenly over the surface; next stand it up to drain and dry, out of the way of all dust.

Mr. Newton was of Mr. Chapman's opinion, and believed that the albumen solution should be old; by age he said that it would become absolutely clear, and remain so.

Your poor correspondent was good naturedly pitched into by Prof. Seely, editor of the American Journal of Photography, for having forgotten to report some remarks of his, in which he stated that somebody published a gelatine developer in his Journal a great many years ago, and that

in his opinion, the said somebody was entitled to the credit, and Mr. M. Carey Lea was not. I was forced to inform the Professor that I did not hear his remarks, and did not intentionally leave them out; that I was willing to report him in detail, and begged for his statement in writing. This he declined giving; therefore, I am forced to use the word *somebody*, for want of his proper name; it is the best I can do. This did not end the troubles of the undersigned, for he was hauled over the coals by another member, whose good nature was of a totally different kind from that of Prof. Seely. Now what would you guess his trouble was? Well let me tell you: I reported that he exhibited at a recent meeting *an excellent negative*; he said it was a very poor one: merely a difference of opinion between experts; horrible, wasn't it? just wait until he brings another, and note what *it* will be called.

I omitted in my report of the January meeting, to give Prof. Tillman's remarks "on albumen." He has since kindly supplied the following:

"Albumen plays so important a part in the animal economy, and has of late become so useful in the arts, especially in certain photographic processes, that increasing interest is excited regarding its composition. It forms above seven per cent. of the blood, and ten per cent. of the white of egg; in both it exists as an alkaline albuminate. Its atomic formula as deduced by Lieberkuhn is, according to the new notation,  $C_{72}H_{112}N_{13}O_{22}S$ . The replacement of one atom of hydrogen by one atom of sodium forms the albuminate of soda, found in the white of egg. Gerhardt coincided with this view, and the latest investigations of Lehmann seem to confirm it, although he prefers to describe albumen only by its percentage analysis. We are at first struck with the fact that the atoms which form this compound atom, or atomoid, are expressed by very high numbers. It is ranked among the most complicated of chemical structures. No definite opinion can be formed as to its actual constitution; however, the speaker had found this singular numerical relation of its several elements, viz.: the number of atoms of hydrogen in the compound is



equal to the sum of the number of atoms of carbon, nitrogen, and oxygen; and further, the numerical ratio of the atoms of carbon and nitrogen is as four to one. A knowledge of these relations has no practical value at present, unless it be in a chemical classification based on multiples of hydrogen; yet it may be the clue by which we shall finally arrive at the cause of the stability of albumen as a chemical structure."

So much for the February letter. In the hope that March may prove a better one, believe me, as ever,  
C. W. H.

### Northwestern Photographic Society, Chicago.

A REGULAR meeting of the Society was held on Wednesday evening, February 13th, 1867. President Jas. R. Hayden in the chair.

Minutes of last meeting read and approved.

Messrs. H. S. White, H. Rocher, and F. B. Sanborn, were elected to membership.

Mr. J. S. Miller read a paper on "Making Negatives from Life," and gave the following formulæ, as those he had found most successful and reliable in every-day practice, viz.:

Bath made of *fused* nitrate of silver 45 grains strong.

Collodion sensitized with bromo-iodide salt, made by dissolving 3 drachms of iodide of cadmium and 1 drachm of bromide of cadmium, in 5 to 7 drachms of liq. ammonia. Evaporate to dryness in a porcelain capsule, and fuse. Add about 12 parts of this salt to 1000 parts of plain collodion, and bring to a light straw-color by adding a few crystals of iodine.

For developer, use "saccharo-sulphate of iron and ammonia," made as follows: Dissolve separately, 6 ounces of protosulphate of iron, 1 ounce of sulphate of ammonia, and 1 ounce of rock-candy, in sufficient *boiling* water to make a saturated solution. Then mix all together and set away to cool. When these crystals are dry, make a stock-solution about 30 grains strong, and when using, add to every 16 ounces about 4 ounces of acetic acid No. 8.

Mr. Watson agreed to continue the sub-

ject of "Negatives from Life," and to prepare a paper for our next meeting, on "Posing and Lighting the Model."

Votes of thanks were then passed to Mr. Joseph H. Ladd, publisher of "Humphrey's Journal," and Mr. E. L. Wilson, editor of "The Philadelphia Photographer," for gratuitous copies of those valuable periodicals for our table.

On motion adjourned.

B. F. HALL, *Secretary.*

### THE AMERICAN ARTISTS' ASSOCIATION.

QUITE a novel branch of business has been opened in our city during the past month, which we think will be found a great convenience to the photographic trade.

Almost every photographer throughout the country, has offers of work to be *enlarged or colored*, which he cannot undertake for the reasons that he is unable to do it himself, and that he is not acquainted with any artist whom he can trust to do it for him. He also has frequent demands for the beautiful porcelain miniatures now becoming so justly popular, but, not having the time to give them proper care and attention, he must allow the profit he could make on them, go somewhere else, or leave his customers ungratified. He has often sighed for some one to whom he could send his negatives and prints, and have the work done at such a reasonable price as to allow him some profit, and, at the same time, be able to secure *all* the trade that comes to him.

*The American Artists' Association* has been formed for these objects. Every photographer may now take orders for colored and porcelain pictures, and have them done by competent and accomplished artists. Some of the very best talent in our city and in the country, both in coloring and in photographic manipulation, is engaged by the Association. We are acquainted with the parties most directly interested, and have taken great pleasure in examining their specimens in great numbers. Than their colored porcelain pictures, there are few things photographic more beautiful and life-like. Their plain porcelains are also very superior and hard to excel. Their colored

work on paper, from the new cabinet portrait (which, by the way, is a beautiful size to color), to life-size, is done in the very best manner, though, to suit all customers, they are prepared to make all classes of work. A great point in coloring a photograph, is to preserve the likeness. In this direction, the work of the Association is absolutely perfect. In every case, satisfaction is guaranteed where proper directions are given. We predict for them an immense amount of business, and, through them, an increase of trade for others.

### ALABASTER PAPER.

A SHORT time ago, we expressed in these pages, a desire for a plain paper that would give all the vigor and detail of albumen paper without the gloss. We have had four responses thereto. Two were in the shape of specimens of paper; one a formula for making it, which we published; and the fourth, a process offered for sale. Of the specimens of paper sent, we found one of no value, and the other *more than we dared ever hope for in plain paper*. For want of a

name, we shall dub it Alabaster paper, for the hardness, smoothness, and insolubility of its surface resembles that beautiful mineral, alabaster, more than anything else. We made a series of prints upon it, in comparison with albumen paper of the best quality, and secured most unexpected and gratifying results. The prints resemble fine steel engravings. The detail secured, both in landscapes and portraits, was all that could be got from the negatives used, by any process, and the negatives were selected for their detail. The prints may be toned in any way to suit the taste, with the same ease and regularity as albumen prints, without any special process being used, and they are equally brilliant, more pleasing to our taste, and more artistic. There seems to be a *purity* about it which is new to us. The surface resembles truly that of alabaster, and is admirably adapted to coloring. We are printing upon it for future illustration in our Journal, when we hope to tell our readers how to get it and how to use it. It has been patented, but is not yet in the market.

## Salad for the Photographer.

THE fumes of cyanide in the dark-room, especially in damp weather like the present, will cause negatives to be hard and chalky. Many complain of this trouble without suspecting the cause. Even pouring out a cyanide solution in the dark-room, from one vessel to another, will dissolve the half tones of a negative if left standing moist after development.—*Br. Jour.*

PIN-HOLES have been known to be caused by allowing chloride of lime to remain in the dark-room among or about the negatives. It is stated, by a correspondent of the *British Journal*, that much of the French *tissue* paper used for wrapping negatives and prints, contains a large quantity of chloride of lime, and will produce bad effects, if kept in damp places.

IN preparing your hypo bath, in cold weather, use a little hot water. It will prove beneficial.

I THINK that the following will be found a safe, simple, and reliable dry process:

Flow the plate with a good bromo-iodized negative collodion; sensitize in an ordinary, rather acid bath; wash well, in at least four or five changes, then flow with a saturated solution of gallic acid; drain for a minute or so, then flow with a hot four-grain solution of gelatine, and dry by the stove. Except in length of exposure, I believe this process will compare with the wet, very favorably.

To develop, put the exposed plate in a dish of water, and develop with the ordinary pyro-gallic acid and nitrate of silver solution. The development and intensifying is slow, but can be done at leisure.

ROBERT STARK.

WOODSTOCK, C. W.

A CORRESPONDENT, in Canada, sends us a print from a checkered negative, showing a

very curious appearance, and asks the cause. As he gives us no clue concerning it, we can only guess. Imperfect washing, after fixing, is a frequent cause, and also, bad varnish will produce trouble in the same way. The same annoyance will occur in out-door photography, when negatives are boxed away damp, put in closed boxes, and allowed to remain in the sun or elsewhere, where the heat is very great. Be careful in these several particulars, and this trouble will cease. It is not very pleasant to make a nice negative and have its beauties hidden by a veil or network, hung over it by one's own carelessness.

LES MONDES tells us that a Dr. Marini, having discovered a method of preventing the decomposition of the body after death, made the following horrible use of photography, to prove the perfection of his system: "An author of the history of Sardinia, Pietro Martini by name, died on the 17th of February last. On the 17th of June, the corpse of the defunct historian was brought to light, and was found to be so supple and lifelike, that it was dressed up 'in his habit as he lived,' taken into a glass-room and photographed! This was said to have been done in the presence of friends of the departed, who, I fear, did not reverence much the memory of their Pietro, and a likeness was produced, which could not be distinguished from a portrait taken when the subject was alive! The reader will know that this might be, and still the photograph little resemble a living man."—*Corr. Br. Jour.*

#### FOR A PHOTOGRAPHIC ALBUM.

Just as the summer bee will stray

Where rich bloom fills the woodland dells,

Bearing the luscious drops away,

That help to store its golden cells;

So do we gather in this book,

The great, the good, the kind, the dear;

And bless the pages while we look

On memory's honey gathered here.

*Eliza Cook.*

PHOTOGRAPHS IN COLORS.—It is announced abroad that Mr. Chambay, an obscure photographer in Paris, has really discovered the art of reproducing natural col-

ors by photography. If he has, our readers shall hear more about it, and perhaps find the *Photographer* accompanied by a specimen! Very soon.

SUBMARINE PHOTOGRAPHY.—A French artist, M. Bazin, has been experimenting lately, with the design of obtaining photographs of sunken vessels, so that in attempting to raise the same, positive knowledge can be had of their relative positions. To accomplish this, M. Bazin descends to the necessary depth, in a strong sheet-iron box, which he calls his "photographic chamber." Thick glass windows afford every facility for making the necessary preliminary observations, and the picture is taken by the aid of a strong electrical light.

*Scientific American.*

CHEAP YELLOW GLASS FOR OPERATING ROOMS.—To some thick spirit varnish add a small quantity of iodine, sufficient to render the varnish of the requisite deep color. When a glass is warmed, and a coating of the varnish applied, it will be found to be beautifully transparent. In the case of a globe for a lamp, or gas, it should be warmed, and a little of the varnish poured in, and turned round before a fire, until entirely covered. Any depth of color may be obtained.—*Br. Jour.*

A NEW kind of photographic paper has been invented in England, by Mr. A. Taylor. Instead of albumenizing or salting it in the usual way, he uses a solution of white lac in water impregnated with borax. After being prepared thus, the sheet is sensitized and printed in the usual way. Its color is black or sepia, and does not change materially when fixed with hyposulphite. If, after sensitizing, the sheets are once more dipped into the white lac solution, their sensitiveness will be materially increased.

MR. A. MARSHALL, 145 Tremont Street, Boston, sends us the following leaves for Salad:

*Silvering Paper.*—After floating the paper a sufficient time upon the silver, lift it by two corners and draw it over a smooth glass rod so that the surplus silver runs back into the dish. In practice, I find that paper so



silvered, prints equally as well as when silvered in the old way, besides saving at least one-half the solution, otherwise wasted.

*Cleaning Glass.*—Put the glass into a dish of water—about a gallon—and three ounces of nitric acid. After letting it remain a few hours, take it out and rinse thoroughly under the tap (I find a piece of sponge is a good thing to wash glass with); pour over one side of the glass, albumen made of the white of one egg mixed with eight or ten ounces of water, filtered through cotton; pass the plate quickly under the stream of water to wash off the surplus albumen. Enough will remain to insure a perfectly clean plate, but in such a minute quantity as not to harm the bath.

*DISSOLVING STEREOSCOPE VIEWS.*—A gentleman in England has received a patent for an apparatus for producing dissolving stereo views. By the use of two mirrors instead of one, on the well-known principle of the camera lucida, he gets very beautiful effects.

SOME of the European journals and magazines announce that they will give a dozen cartes-de-visite to every new subscriber. We will do much more. We will give twelve elegant specimens of photography of the new size and larger, to every subscriber.

A CORRESPONDENT of the *British Journal* says: "Rubbing pipe-clay on the hands the same as soap, will remove the offensive odor caused by using the chloride of lime and salts."

A "WORKING SHOEMAKER" contributes some "Lines for a Photographic Album," to the *British Journal*, which conclude viz.:

"And here we hold the forms we prize,  
Within our grasp forever!"

They show how little a "shoemaker" knows about photography. Talk about holding photographs "within our grasp forever!" It cannot be done very often, unless they be *carbon*, or there should be another deluge to wash them better.

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## Editor's Table.

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THE NEW SIZE, we are convinced, is going to become popular. Elegant specimens are coming to us from all directions. Each enterprising man seems to be trying how good he can make them. It has so awakened and revived some of the callous ones, that they have already expended hundreds of dollars in preparing to make these new pictures. Some of the most excellent examples we have received, were the result of the skilful manipulation of Mr. George H. Fennemore, with Mr. F. S. Keeler, southeast corner of Eighth and Market Streets, Philadelphia. It is very rarely that we see plain photographs equal to them. Every point in these pictures seems to have had most careful study, and nothing more could be hoped for in a silver print. Such pictures *must* become popular, *and they will*.

Mr. Fennemore is doing good service by his care and skill, and will stimulate others considerably. Messrs. Wenderoth, Taylor & Brown have also sent us some fine examples which are hard to excel. Really, the new size seems to have awakened the craft to new effort and new purpose and determinations. In New York, Messrs. Benda Brothers, who have opened magnificent

rooms at Fifth Avenue and Seventeenth Street, have ceased making cartes-de-visite altogether, and are pushing the cabinet size. Messrs. J. Gurney & Son, New York, have sent us some fine specimens. They are daily making them in numbers, and are using every effort to popularize them. It was our pleasure to have a negative made by them which is eminently satisfactory, and as a photograph very successful.

Mr. H. Benedict, of *Seville, Ohio*, thinks that those who find their customers to object to the new pictures on account of the cost of albums, can have them mounted on sheets similar to those we mount our prints on, and have them bound in with their magazines and periodicals, such as Harper, Atlantic Monthly, and Godey's Lady's Book. The idea is not a bad one, and is easily carried out. All such suggestions are valuable, and we do like to see an interest shown in this matter, for really, photographers, by properly pushing these pictures, you will revive your trade. Already we see indications of better times.

Mr. F. B. Gage, St. Johnsbury, Vermont, has sent us some specimens which are not only new

in size, but entirely new in style. They are bust pictures from what he calls "vignetted negatives." The "vignetting" process gives a very pretty clouded effect around the whole or parts of the figure, as the taste may require, and by proper care, very good results may be secured. Some of the specimens are certainly very pretty, while in others the vignetting is too decided; but this, Mr. Gage says, is owing to the haste with which the backgrounds were made. This we can readily see is easy to manage. Mr. Gage has applied for a patent for his process. His improvement may be applied to any size. Let the style be varied, and the entire get-up of the new size be as distinct as possible from the old styles. Be careful not to begin at too low a price. As we seek to improve the business and the art in one direction, do not let us degrade it by low prices and inferior productions.

"N. W. P. S."—At the meeting of the N. W. Photographic Society, held on Feb. 6th, a paper on "The Influences of Low Prices on the Art," was read by Mr. J. Battersby. While we cannot indorse all that was said, some of the arguments were very good. We extract the following: "It has a direct tendency to degrade the art and all connected with it. If there is a class of individuals amongst us who are incompetent to compete for popular favor with the rest upon fair and equal terms, let them seek employment more congenial, for which they may possibly be better qualified.

"It is perfectly natural and desirable that rivalry should exist amongst us. Let it be an honorable emulation to sustain and elevate, instead of degrading the beautiful art, which includes among its votaries numbers of the most refined and learned personages of every civilized country on the globe.

"The amount of natural capacity and the degree of education requisite to constitute a thorough photographer, if devoted to any other pursuit, would command double the remuneration and would be more highly respected. Whose fault is this? Evidently our own!

"The best galleries in the country are at the present time charging the same prices for work that they did at the outbreak of the war, when the price of every article used in the business was fifty or a hundred per cent. lower than they are at present. We were not then burdened with taxes almost too heavy to bear; at the same time rents were merely nominal compared with the present time, and where we now take a dozen pictures hundreds were then required.

"Instead of the prices being reduced so as

barely to cover the cost of materials used, we should be fully justified, by the altered circumstances, in more than doubling our prices in order to meet our increased expenses—but this we do not propose to do. All we ask is a fair, living price for our work.

"Let us make these facts known to the public, and they will assuredly sustain us in demanding a fair remuneration for work that is properly executed."

This paper caused a very excited reply in one of the dailies, from one who seems to feel the allusion to be to himself, and who, with considerable bombast, asserts his arguments for low prices. It seems that these jealousies will occur among photographers. If there was less nitric acid and more gum arabic, or regialine, among them, to stick them together, it seems to us matters of this kind could be kindly settled to mutual profit and satisfaction. A man may secure a run for awhile by reducing prices, but he will find, after counting waste, work rejected, &c., that the plan will not pay. We have seen it tried.

ROWELL'S PORCELAIN PICTURES.—Mr. Frank Rowell has favored us with three one-half size specimens of porcelain pictures, which prove him to be quite as skilful in that direction as he is in carbon printing.

His process is one peculiar to himself, and is one which every one can easily work when taught how. There is a delicate softness and beauty about his pictures which is peculiar, and at the same time they are possessed of excellent detail. The tone of these is a delicate sepia, which would be unpleasing to some, but which can be managed to suit the taste. By his method all that is in the negative seems to be secured in the print.

MR. THOMAS SUTTON, editor of *Photographic Notes*, says: "Our transatlantic cousins beat all creation in journalism. For instance, the *Philadelphia Photographer*, with its pretty illustrations and its beautiful paper and printing, and its redundancy of spirited original matter, is a perfect mine of wealth for us Britishers to crib from. How can we ever hope to rival it in the Old World?"

Thanks, Brother Sutton. Dig away at us, if it gives you any pleasure. We are looking anxiously for your *new Photographic Dictionary* to find enough adjectives to enable us to acknowledge our obligations to you. We send you our Mosaics. It is partly English. Be merciful with it. If it is not as worthy as your own *Diamond*, it is much used here and admired.







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T H E

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## DECIMAL WEIGHTS AND MEASURES.

ONE of the most important acts of the last Congress, which has received very little attention from the public, or even from the press, but which is calculated to affect more widely the interests of the artisan, the shop-keeper, the merchant, the photographer, to disturb, in short, more generally the familiar customs of the people, than any other act passed during the session—is the legalization of the French system of weights and measures.

For several years past, a numerous and influential class of men have labored for the establishment of this system. The States of Maine, New Hampshire, and Connecticut, by their several legislatures, have urged upon Congress the adoption of a decimal metrology; the latter State recommending for all its public schools the arithmetical teaching of the *metric* system, as it is called. Memorials of citizens, of colleges and universities, and of other bodies, from various portions of the country, have pressed upon Congress this reform. The scientific portion of the community has generally favored the system; and the National Academy of Sciences, at the request of the Secretary of the Treasury, made a report in January, 1866, approving its adoption, recommending that it be primarily legalized, and its introduction into trade encouraged by the pro-

duction and distribution of the new or metrical standards, and by their official employment in the custom-houses and post-offices; and further suggesting that the base coinage of the Government should represent, in size and weight, precise multiple or fractional values of such standards.

This active and extended interest in favor of foreign standards of weight and measures is not surprising, in view of the universally admitted awkwardness and incongruity of our own tables, and the equally admitted importance of international uniformity. If we look abroad, we find that the greater portion of the civilized world has already adopted, or taken steps to adopt, the French system. From the statement of the Hon. Charles Sumner, Chairman of the Senate Committee on Weights and Measures, we learn that this system has been adopted (either wholly, or partly and provisionally), in "Austria, Baden, Bavaria, Belgium, France, Hamburg, Hanover, Hesse, Mecklenburg, the Netherlands, Parma, Portugal, Saxony, Sardinia, Spain, Switzerland, Tuscany, the Two Sicilies, and Wurtemberg." To these countries may be added, Greece, and the whole of Italy; Venezuela, New Grenada, Equador, Brazil, and Chili, in South America; Mexico and Guatemala; and lastly, Great Britain and the United States. The metric system is thus rapidly approximating a universal establishment;

and a common measure among nations is so great a desideratum, that even those who find sound and serious objections to this system, will hardly be likely to offer a very determined opposition to its introduction, unless they are prepared to offer a much better one in its place.

The first of the two acts of Congress on this subject (passed and approved July 28, 1866), provides :

"That from and after the passage of this act, it shall be lawful throughout the United States of America to employ the weights and measures of the metric system; and no contract, or dealing, or pleading in any court, shall be deemed invalid, or liable to objection, because the weights or measures expressed or referred to therein are weights or measures of the metric system."

As the French standards of measure and weight are thus now made by law co-ordinate with the yard, pound, and gallon, heretofore in use in this country, and as this permissive use is, of course, designed to prepare the people for an early legal enforcement of the system, it is well that the comparative value of these standards should be impressed upon the popular mind.

For the convenience of those wishing to make the conversion from the metric denominations and values to those in common use, the following tables are annexed :

#### MEASURES OF LENGTH.

<i>Metric Denominations and Values.</i>	<i>Equivalents in Denominations in Use.</i>
Millimeter, . . . $\frac{1}{1000}$ meter,	. . . $\frac{1}{32}$ inch nearly.
Centimeter, . . . $\frac{1}{100}$ "	. . . $\frac{2}{5}$ "
Decimeter, . . . $\frac{1}{10}$ "	. . . 3.937 inches.
Meter, . . . 1 "	. . . 39.37 "
Dekameter, . . . 10 "	. . . 32 feet 9.7 inches.
Hectometer, . . . 100 "	. . . 328 " 1 "
Kilometer, . . . 1000 "	. . . 3280 ft. 10* "
Myriameter, . . . 10,000 "	. . . 6 m. 1128 ft. 4 in.

#### MEASURES OF SURFACE.

<i>Metric Denominations and Values.</i>	<i>Equivalents in Denominations in Use.</i>
Centare, . . . 1 square meter,	. . . 1550 square inches.
Arc, . . . 100 "	. . . 119.6 " yards.
Hectare, . . . 10,000 "	. . . 2.471 " acres.

\* About nineteen feet less than five-eighths of a mile.

#### MEASURES OF CAPACITY.

<i>Metric Denominations and Values.</i>	<i>Equivalents in Denominations in Use.</i>
	<i>Liquid or Wine Measure. Cubic Measure.</i>
Milliliter, $\frac{1}{1000}$ liter,	16.2 m., .061 c. in.
Centiliter, $\frac{1}{100}$ "	2 fl. drs. 42.3 " .610 "
Deciliter, $\frac{1}{10}$ "	3 oz. 3 " 6.10 "
Liter, 1 "	33 oz. 6 $\frac{1}{2}$ * " 61.02 "
Dekaliter, 10 "	10 q. 18 oz. 1 d. 9 " 610.22 "
Hectoliter, 100 "	26 gs. 21 oz. 3 d. 4 " 3 ft. .918 "
Kiloliter } 1000 "	264 gals. 22 oz., 1 yd. 8 " .542 "
or Stere, }	

#### WEIGHTS.

<i>Metric Denominations and Values.</i>	<i>Equivalents in Denominations in Use.</i>
	<i>Avoirdupois Weight.</i>
Milligram, . . . . .	.0154 gr., very nearly $\frac{1}{65}$ grain.
Centigram, . . . . .	.154 " " $\frac{1}{3}$ "
Decigram, . . . . .	1.543 " " "
Gram, . . . . .	15.432 " " "
Dekagram, . . . . .	154.32 " a little more than $\frac{1}{2}$ oz.
Hectogram, . . . . .	3 $\frac{1}{2}$ ounces 12 grains.
Kilogram, . . . . .	2 pounds, 3 ounces, 120 grains.
Myriagram, . . . . .	22 " 320 grains.
Quintal, . . . . .	220 " 7 ounces, 140 grains.
Millier or Tonneau, 2204 "	9 " 62 " " T."

Our readers will, no doubt, read this valuable paper with a great deal of interest and profit. It will be found doubly useful to all photographers, inasmuch as it will give them a ready way of calculating quantities equivalent with our own, when given in grams, &c., &c., and it will enable them to study the new system and become quite familiar with it by the time it comes into general use, which it is sure to do. We all know the perplexities of our present system of weights and measures. Many of our readers have seen the valuable communication on this subject in *Photographic Mosaics* for 1867, page 107, by Mr. M. Carey Lea. If all have not read it, they should do so, and notice his arguments on, first, "The need of a change," and second, "The advantages of the new system."

The new five-cent piece recently issued by the United States Mint will be of some value to those who desire to try formulæ where grams, &c., are used. This new coin weighs 5 grams. Should only 2 $\frac{1}{2}$  grams be needed of a salt or other substance, weigh 5 grams and then divide and balance it on the scales, and use what you

\* Or nearly 2 ounces more than 1 quart.



want. Should you need  $12\frac{1}{2}$  or 15 grams, weigh 25 or 30 grams, and use half the quantity. The new coin will be found very convenient to photographers for this purpose. For measuring, it is also useful, though not quite so exact as for weighing. It was intended to measure 20 millimetres in diameter or  $\frac{4}{5}$  of an inch, but it measures a trifle more. Five of the new coin laid flat, side by side, were intended to measure a decimetre (3.9368 inches), but they measure a little more, *i. e.*, 4.035 inches. This is a pity. In trying several with the calipers, the coins seemed to vary in diameter slightly.—ED.

### DIAPHRAGMS.

BY M. CAREY LEA.

THERE is no step in photography that could be accomplished with so much facility in proportion to its importance as one connected with stops.

If all makers, or, at least, all first-class makers, instead of stamping numbers or other marks upon their diaphragms, would stamp opposite to each opening the relation of its diameter to the focal length of the lens, the advantage would be exceedingly great. The openings would then be marked  $f20$ ,  $f25$ , &c., or, omitting the  $f$  as being understood, simply 20, 25, 30, &c., indicating that the opening in question was one-twentieth, one twenty-fifth, &c., the focal length of the lens or combination. The following benefits would result from this change:

The photographer who uses a number of lenses, in place of being obliged to remember the relations of each diaphragm of each lens to light, so as, after estimating the general strength of the illumination, to guess at the proper exposures by reflecting over his experience for the particular lens and diaphragm which he is about to employ, would simply need to learn the exposure necessary for a stop of  $f20$ ,  $f25$ , for any lens whatever. It is true that the relation of the diameter of the stop to the absolute focal length, does not fix the proportion of light admitted with entire accuracy, but it does so sufficiently to answer all practical purposes. When the stop is between the lenses, the proportion of light

that passes through it, will, to some extent, depend upon the construction given to the front lens. But variations that can arise in this way, are scarcely sufficient to diminish the practical utility of the principle here involved. If an  $f25$  diaphragm requires with a given light an exposure of a given number of seconds with one lens, it will demand the same approximately with any other, though the focal length be longer or shorter. So that, if this improvement were adopted, the photographer could manage any number of lenses with the same convenience as to fixing the exposure, as if he always worked with one.

A feature in this which is extremely favorable to opticians, is that it would immensely diminish the trouble of trying new lenses. In place of trying various stops, experimental exposures, and so forth, the photographer would be able to give the right exposure at once, even with a lens he had never seen before. For, knowing that with a given light he would expose ten seconds, let us say, with an  $f20$  stop, he would do the same with the lens under trial with the corresponding stop, and be spared a great part of the labor which often deters photographers from experimenting. Photographers now, moreover, feel that the times of exposure have to be learned for each new lens, and the employment of new lenses tends to confuse the experience painfully acquired for those actually in use. This is by no means all. For, if stops are marked by figures in this way, we can easily estimate *comparative exposures*. Then, if we wish to pass from an  $f20$  stop to an  $f25$ , we know at once that the exposure for the latter must be a little over one-half more than the former. For, 20 multiplied by itself, is 400; and 25, 625. The ratio between 400 and 625 indicates the increased exposure necessary in the former case.

There is a common idea prevalent that stops to lenses are arranged upon some regular system, and that they are suited for exposures, each one-half longer than the next larger in sequence: that if 20 seconds be the right exposure for any stop, the next smaller must have 30, and so on. This, I think, is not the case; it certainly was not in any determination that I have made. For exam-

ple, a triplet lens showed the following relations between its stops:  $f13\frac{1}{2}$ ,  $f18\frac{1}{3}$ ,  $f21$ ,  $f27$ ,  $f35\frac{1}{4}$ ,  $f54$ .

The ratios of the squares of these relations to which the exposures must be directly proportional, are: 182.25; 353.44; 441; 729; 1242.56; 2916.

It will be seen that there is only sufficient regularity to mislead, and not for any real utility.

In the case of another lens, the diameters of the stops were found to be

$$\frac{15}{64}, \frac{18}{64}, \frac{23}{64}, \frac{26}{64}, \frac{36}{64},$$

of an inch.

The squares of the numerators of these fractions are respectively 225, 325, 529, 676, 1296.

To be in the ratio of one-half longer exposures, these numbers, starting with the first, should be 225, 337, 505, 757, 1135.

It will be observed, that after the three first, the differences are material, and that throughout, they are sometimes on the side of longer, sometimes of shorter exposure.

Nothing would be more easy and simple than for opticians to adopt this system of marking, and good opticians would have every way to gain by it, as it would materially facilitate the distinguishing between good and bad optical work.

At present, the relative merit between different sorts of lenses, is a good deal concealed by the arbitrary arrangement of stops. Few persons have the time or even the disposition, in testing a lens that may be offered to them, to measure its absolute or "equivalent" focal length and the actual diameters of its stops, to compare these, and then to compare the defining powers of the lens with the results so obtained.

But if these relations of stops to focal lengths were stamped on the diaphragms, photographers would soon get into the way of taking them habitually into account, and of expecting a certain defining power with an  $f20$  stop, and so on.

One thing is certain, that the opticians who first adopt this system, will thereby show the greatest confidence in the excellence of their work, by thus putting it into the power of all to correctly estimate it.

In yet another important respect the introduction of this custom would have material advantage. When we are informed that with any new negative process, an exposure of so many seconds was found proper, it tells us absolutely nothing. If the size of the stop, or, if the focal length is given, we still know little or nothing. Even if both are mentioned, our information is still imperfect, unless we are told whether the focus referred to is the absolute or the "back" focus. If any one will be at the pains of looking at the information given as to exposures, with the processes of the last few years, he will perhaps be surprised to find how wholly useless and indefinite it is in the great majority of cases. And when it is considered that this is further complicated by the uncertainty of the light, it will be felt that the information given is just nothing at all.

But if a writer tells us that his process receives a proper exposure by 25 seconds of good light and an  $f20$  stop, we at once get a good conception of what is the comparative sensitiveness of this method. It would require but an exceedingly short time to make all practical photographers familiar with this way of computing, provided only, that the opticians will give them the opportunity. It cannot be expected that the mass of photographers will set to work to measure the absolute focal lengths of their objectives, and to critically ascertain the diameter of the stops; the makers must do this for them, and will, sooner or later, I think, generally adopt a system so simple and so universally useful.

### TO A CLASS OF TROUBLED PHOTOGRAPHERS.—III.

LADIES AND GENTLEMEN: At our last interview we separated in a *fog*, hoping for something brighter to follow. The weather has not been promotive since then, of any very clear work, in the way of photography, and it is not surprising that there are not more negatives upon the table for examination this morning than there are.

That there are some, however, and the fact of so many of you being present, induce the belief that our meetings are profitable and pleasant, and that your troubles

are not yet all at an end. There is very little evidence here of the trouble which occupied us at our last meeting, and this will enable us to see more clearly the troubles that *do* exist, and tell how to treat them.

In attempting to teach some of you, I feel that I am exercising a considerable degree of presumption. If there are those here that feel so, truly, it is optional with them whether or not they pay any attention to these remarks. I am always open to instruction. I often pick up valuable information from humble workers in photography, where I least expect it, and if I tread upon any of their private toes they must bear the pain, and say nothing, for the good of our craft. One of the best lessons I ever learned in my life, was in one of the filthiest dark-closets you ever saw, and in which the most miserable negatives were made—it was to *keep clean*.

I shall not be surprised if I continue to tell you many things you already know, or if I make an occasional blunder; but if, with all the errors, I can convey to your minds only *a few new truths* that will do you good and *freshen what you already know* in your minds to such an extent, that you practise it to the improvement of your work, I shall feel amply repaid.

We will now take up the other troubles which occur in making negatives, see what they are, and how to get rid of them. None of the negatives here are entirely free from imperfections, and like fogging, these are caused by carelessness and want of proper attention in the manipulation. These imperfections at times trouble the most experienced photographer.

I will now explain separately the principal causes of the troubles in the negatives collected here. I will first number them, and then take them up in order as I wish to comment upon them.

Nos. 1 and 2 are full of semi-zigzag lines, extending from the edge of the plate that first enters the bath solution, upwards; No. 1, is very bad; No. 2, less so. These lines are caused by the want of harmony between the bath and collodion: that is, the collodion has by some mistake received too much iodizing to suit the strength of the bath, or

the bath is insufficiently strong for the collodion. When such is the case the lines will be more opaque, and extend further, in proportion to the excess of iodizing in the collodion, or the deficiency of silver in the bath. The remedy is obvious. By the hydrometer, test your bath; if it is of less strength than forty grains to the ounce, add silver until you bring it to that strength, and try a plate. If the lines still appear (which you can discover by looking through the plate after immersion), add plain collodion to the iodized until the lines disappear.

We may illustrate this by an actual experiment, which will interest you. I have some collodion here which I know to be too highly iodized. I will coat a plate with it, and by bringing the glass bath-holder to the light you can watch the coating of iodide of silver in formation. You will notice that the action is very rapid. You can also see these vexatious lines through the glass, and a sort of non-coalescent action being exercised by the portions of the film forming the lines, and that the formation of the iodide of silver is less rapid near these lines than on the other parts. It is evident that the formation of the sensitive coating is too rapid, and the probability is, that if it was less so this non-coalescence would not be exercised. Let us try adding a little plain collodion, gradually. A slight addition helps, and a greater quantity mostly removes the trouble, you observe.

In Nos. 3 and 4 we find streaks and lines of a different kind, attended by a scum commencing at the lower edge of the plate, and extending upward in the shape of a triangle. This is caused by a scum floating upon the surface of the silver solution. The remedy is simple. Keep your dark-room perfectly clean and your bath well covered when not in use, and filter it at least once every day or two. Some have a good habit of filtering every night, and are then ready for work in the morning.

On negative No. 5, we find dark, opaque lines running down from the top. These are caused by unequal development, in this way. After you have flowed the developer over the plate, and the image has made its appearance, many of you, I have noticed, hold it up to the light to see if it is clean,



sharp, &c., and the developer thus left to its own action forms into lines, guided by the uneven edges of the glass, and, of course, deposits a heavier amount of silver in its train than upon the rest of the negative, and thus you have a failure in what would otherwise (with a little patience) have been a success. The best rule for development is, provided the exposure is right, to develop it as far as it will come, or if you find the image starts out too quickly, indicating over-exposure, watch closely until all the details are out, then quickly hold it under the tap, and so stop further development; after that you can examine it as long as you like.

No. 6 is afflicted with lines of still a different character, very much resembling in shape the lines on the back of a turtle's shell; *i. e.*, large and irregular squares. These arise from ether and alcohol being present in the bath, which causes the nitrate of silver solution to run into lines after taking it from the bath, and also prevents the developer from flowing smoothly over the plate. The remedy is, to boil the bath down about one-half, and add fresh rain or distilled water until it is the proper strength again, after which filter and it is ready for use.

In No. 7 the streaks and lines are caused altogether by the developer. You will notice by looking at this negative that at the lower right-hand corner, there is a large semi-transparent spot, and from it the lines radiate in a curve all over the plate. That indicates that the developer has been too strong, and without sufficient acid in it; it was also carelessly applied; instead of flowing it over evenly, it was thrown over with a dash, which caused the spot in question. I think I cautioned the gentleman who made this negative in reference to his method of developing, when I last visited his dark-room. Do not think the danger of spoiling your negative is over after the exposure is made. Many troubles arise with the developer. When the iron is too strong, and without sufficient acid to restrain its action, it causes an unequal reduction of the silver, which produces the ugly markings we see here.

No. 8 is a most wretched negative; it seems to possess all the ills that occur in

negative-making combined; in the first place it is full of pin-holes and large streaky patches of white scum, as if somebody had poured a solution of chalk and water on it; secondly, the film is thin, and the image harsh and without detail; in fact, it is seldom we meet with a negative so destitute of a single good quality as this is. If the party is present who made it, let him listen attentively while I tell you all the troubles of this negative. First, there are two distinct kinds of transparent spots: one kind is what is called pin-holes, and is caused by a large excess of iodide of silver in the bath, and the other kind is specks of irregular shape, such as are caused by dust, sediment in the collodion, &c.; then there are the large white patches spoken of above, which indicate that the plate-holder is very dirty, and that the plate not being properly drained, the silver has run down, absorbed the deleterious matter, and has again been drawn up by capillary attraction and settled upon the plate, adhering to it with great tenacity. In addition, that the bath is full of ether and alcohol, is shown by these irregular greasy markings which you see all over the plate; finally, the image is hard and chalky, and lacking detail, proving that the collodion is old, red, and insensitive, or that the bath is highly charged with acid in the vain endeavor to get rid of fogging, or perhaps both. Certainly this negative must have been made by a new member of the class, or else a very careless one.

I will now demonstrate a systematic plan by which you may avoid all these troubles, as some of you may unfortunately get into them some time.

First, then, we will pour this silver solution into a clean white bottle that will hold more than the bath; now adding pure rain or distilled water, in bulk about one-third the quantity of your bath, and shaking well, it assumes a milky, opalescent color. I will now filter it through paper, and if it should not filter clear the first time, will repeat the operation until it does filter clear. The first filtration clears the solution, and has taken the excess of iodide out. Now, dissolving a little pure bicarbonate of soda in some pure water, I add a few drops at a time to the bath, until, you observe, it

will no longer turn litmus paper red; the bath is now neutral and weak, which is the best condition it can be in for precipitating an organic matter contained therein.

The solution is again slightly milky, but that will do no harm. Now I shall dissolve a small pinch of salt in a little water, and add it to the silver solution; this forms a precipitate of chloride of silver. It should now be shaken well and set in the sun until it is perfectly clear, and a black sediment forms at the bottom. The most of the organic matter will be thrown down, and should be filtered out; then put your solution in an evaporating dish, and boil it down one-half to expel the remaining ether and alcohol, and, finally, add water until it is forty grains strong, and a few drops of nitric acid (c. p.), until it turns litmus paper slowly red; filter, and it is ready for use.

As this process for the treatment of a contaminated bath has never failed in my hands, I would advise a trial of it if circumstances should require it at any time.

In the meantime you can buy or make a little fresh collodion; mix with it a little of your old, and you will have a good working collodion. Wash out your dark-room, wipe all your shelves with a damp cloth; clean out your bath-holder with dilute nitric acid (common will do), and rinse it well with water afterward. Wash and wipe dry all your plate-holders; if they are wearing out shellac them well. Wipe out your cameras with a damp sponge; clean all your bottles; filter your collodion and developer, and then try a plate, and if the result does not make a new man of you, and better work, do not expect to hear my voice again, for I am not a responsible party.

I believe I have now examined all the negatives presented for inspection; but as there are some imperfections that frequently trouble the photographer, which these negatives do not, fortunately, seem to be troubled with, I will enumerate a few that occur at this moment.

1st. *Blueness of the film after immersion in the nitrate bath.* This may be caused by too strong a bath for the collodion; a bath not iodized sufficiently; too cold a temperature (your dark-room should never be be-

low temperate point), and, also, by too thin or by an old and insensitive collodion.

2d. *Black and white negatives without half tones.* Such are caused by under-exposure; by the contamination of the nitrate bath after long use; by using a collodion that is too old and red; too much acid in the negative bath; too strong a developer; and, finally, by boiling your nitrate bath to fusion. A great many recommend this latter method to get rid of organic matter in the bath, and yet so few know how to do it properly. If it is fused beyond a certain point, solarization of the negatives is sure to result, and you get chalky whites and deep blacks without detail or half tones.

3d. *Flatness and want of contrast.* This may be caused by over-exposure; by using too large a quantity of developer, thereby washing off most of the free nitrate of silver, or, by using too new a collodion; by plates remaining too long in the nitrate bath; by too much time intervening between the removal from the bath and the development, and by the use of too much bromide in the collodion.

4th. *An apparent formation of network after the film is dry.* This may be caused by using alcohol that is not absolute, and therefore containing too much water; or, if you use potassium salts for iodizing or bromizing, you may use too much water in dissolving them. It is sometimes caused also by impure ether. Crappy lines are formed by the collodion being too thick; in which case, thin it down with iodizing solution. Sometimes they result from the collodion being too gelatinous; in that case add some old limpid collodion to it.

I believe I have now stated the troubles most likely to annoy and vex you, and, although there are many more, still, if you are able to surmount these, you will not mind the others much; besides, the class is open to you once a month; if you are troubled between the meetings, the post-office is for your accommodation as well as your speaker.

Next month we shall comment upon the positive printing process. Meantime, secure some of the best negatives you can, print from them, and bring prints and negatives with you to our next interview. It is desirable now, that you should try to do the

very best you can. The excuse that you do not know how, can no longer be made by you. Do not endeavor to bring the very worst prints you can possibly make. However, be particular to bring the bad ones if there are any. Cleanliness and care are the watchwords.

## MISCELLANEOUS PHOTOGRAPHIC HINTS.

BY F. B. GAGE.

My method of photographing is somewhat different from that commonly used. I therefore send you a statement of the same. It is not claimed to be "the best known," but is the best I have ever used, and I have tried a multitude of processes. The method of making the bath is such, that the photographer can be sure every time, just how much acid there is in a given amount of solution. In the common way of making it, there is always a doubt, as different samples of silver contain very different quantities of free acid. It is also very difficult to neutralize a bath with soda, unless heat is applied. The heat also helps to precipitate any organic matter that might interfere with the sensitiveness and clearness of the impressions.

### NITRATE BATH.

Water, . . . . 12 ounces.  
Nitrate of Silver, . . . 1 "

Dissolve the silver in the water. Dissolve 15 grains of sal-soda (common washing soda), in as little water as possible. Add one-half of this soda to the bath, and shake. Now place the bottle containing the solution, in a hot-water bath, and let it become steaming hot, shaking it frequently. If the precipitate all dissolves, add more of the soda. When the solution refuses to dissolve the precipitate, it may be considered that the free acid is entirely neutralized. Now dissolve 4 grains of iodide of potassium in a few drops of water, and add to the bath; shake it up occasionally, and let it stand in the hot-water bath half an hour or longer, shaking it frequently. The solution will become gradually clear. Remove the bottle from the hot water, and, after the solution has become *entirely cold*, filter it. AFTER

IT IS FILTERED, one drop of nitric acid, c. p., should be added. If your collodion is right, this amount of acid is enough. If necessary, more acid may be used. Any desired quantity may be made by observing these proportions.

After the bath has accumulated too much alcohol and ether, it should be neutralized, after adding enough silver to strengthen it, and be placed in the hot-water bath, and treated exactly as though it were a new bath. It would be well, however, to test it with the hydrometer, to see that it is just the right strength after it becomes cold.

### COLLODION.

Sulph. Ether, conc., . . . 4 ounces.  
Alcohol, 95 per cent., . . . 4 "  
Iodide of Cadmium, . . . 30 grains.  
Bromide of Ammonium, . . . 15 "  
Gun-cotton, . . . 24 to 48 "  
according to its flowing qualities.  
Hydrobromic Acid, . . . 4 drops.

If the cotton is washed very free from acid, one drop of glacial acetic acid may be added to each eight ounces of collodion. Filter, and let stand two days before using. This formula gives me as good collodion as I have ever made.

### REDEVELOPING SOLUTION.

Pyrogallie Acid, . . . 30 grains.  
Water, . . . . 4 ounces.  
Sulphuric Acid, . . . 15 drops.

The sulphuric acid is preferable to any other, as it gives better details and good intensity.

### SILVER SOLUTION FOR REDEVELOPING.

Water, . . . . 16 ounces.  
Nitrate of Silver, . . . 1 "

Dissolve the silver in a bottle sufficiently large, place the bottle in a hot-water bath, and treat it as you would the bath-solution, except that it should have no iodide of potassium in it, as that would give pin-holes. It should be filtered, and a drop of nitric acid added after it is thoroughly neutralized.

In making cabinet cards, as a matter of convenience and economy, I cut 8 × 10 glass in the middle, giving plates 5 × 8. This gives a good working margin, and is a convenient and handy size to work.



If your bath for albumen-paper does not work as well as you desire, place it in a bottle, and set it in the hot-water bath; put in a little sal-soda solution, shake it, let it get steaming hot, and then continue adding soda as long as any precipitate will dissolve; filter when cold, and use. This will always improve any bath, new or old, and of every formula in use. Your prints will tone; *try it!*

If you have trouble in cleaning rusty glass for negatives, take one part nitric acid and four parts water; pour a little on the glass, sprinkle on a quantity of fine table-salt, take a piece of cloth and scour it thoroughly; wash after scouring, and you will see that the glass has a different look from that cleaned by any other method, being more perfectly transparent and pure.

The cartes-de-visite were too small and insignificant to draw out a photographer's best skill. The cabinet size will give a much better scope for artistic excellence.

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## PHOTOSCULPTURE.

NOTHING seems beyond the reach of photography. It is the railway and the telegraph of art. The telegraph detects and catches the thief, and so does photography. The railways carry us to points afar, and so does photography—it does more. So far, it has proven itself able to encompass the earth, to go down under it and bring up its hidden mysteries, and to go up into the heavens and bring down the moon and the stars. But, is this all? No! With the mighty strength of the sculptor's arm it skilfully serves in producing images in marble and the metals. This new process is the invention of an ingenious Frenchman, M. Wilhelm, and is one of the last photographic freaks. Already a number of large establishments are opened abroad for the manufacture of busts, statuettes, and medallions, and, we are proud to say, one is already actively engaged in this country.

Messrs. Huston & Kurtz, 895 and 897 Broadway, New York, are the enterprising gentlemen who have secured the right to manufacture the work in this country, and have the exclusive right of the patent.

While it would seem incredible that one could, by an ordinary sitting to the photographer, secure a perfect image in marble or metal of any size, it is, nevertheless, true. Photosculpture will do it, and we have seen it done. A recent visit to Messrs. Huston & Kurtz gave us this privilege.

The first room visited was the rotunda. This is a circular room twenty-six feet in diameter, with a conical glass-roof, and on the top of the house, like the turret of one of our monitors. Around the sides of the room, twenty-four cameras are arranged at an equal distance from each other, adding much to the turret appearance from the inside, and which point inside towards the common centre of the room, at which point there is a circular platform, about six feet in diameter and eight inches high, which can be raised and lowered to bring the figure in proper place, and which is called the "register." The top of this is divided by cross-lines into twenty-four sections, which are numbered on the sides of the "register." The spaces between these lines are in proportion to the distance between the cameras. Suspended from the centre of the roof is a rod with a ball attached. The imaginary line which may be supposed to run from the centre of the ball to the centre of the platform or register, is called by the artists the "line of departure." The person who is to sit for his bust or stand for a statuette, is placed upon the register, "the median line"—that line which is perpendicular with the centre of gravity, let the body be in whatever position it may—of the body corresponding exactly with the "line of departure." The cameras are all stationary in the walls of the room. The outside of the room is a circular dark-chamber. The subject is posed, the twenty-four sensitized plates placed in the spring-holders, and by the motion of the foot upon a treadle, the cameras are opened simultaneously, and in the usual time the exposure is made, and twenty-four negatives of the subject are secured. These negatives are all numbered, and when viewed in rotation, give the same idea of the figure that one would have in walking around a person. The negatives are solar negatives on half-size plates, and either enlargements or lead-pencil sketches

are made from them to aid the sculptor in forming the clay. The enlargements are made twice the size of the statuette or bust required.

The artist now goes to work, and, from a shapeless mass of clay, by the aid of his enlargements and his pantograph or moulding machine, forms a lifelike figure of his subject, in proportions more exact than the most careful sculptor could possibly chisel them after months of hard study, and numberless tedious sittings by his subject. From the rough clay, the plaster-model is formed, and then the perfect solid picture in marble or other material.

There is no end to the appliances that may be made of this wonderful branch of photography. As iron is in mechanics, so is photography destined to be in the decorative arts, *i. e.*, a helpmeet and a necessity.

A horse of colossal size may be produced with the same ease as a bird. The time will come when our parks will be ornamented, our gateways graced, and our architecture decorated with lovely sculptures by the aid of photography, *wonderful photography!* Busy foundries and immense steam-marble mills will spring up in numbers, as our king of arts may command.

We were shown a finished marble bust of Speaker Colfax, by this process—the first one made in this country, and unfinished ones of Horace Greely, and of our friend Mr. Huston, holding the *Photographer* in his hand.

All who have the opportunity, will certainly avail themselves of it, and go and see the mode of operation. We are glad to know that there is enterprise enough in our country to take hold of it, and earnestly hope there is enough to encourage it and make it profitable.

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### A Photographer among the Prairie Dogs and Buffaloes.

WHERE is the Far West? I thought I had reached it when I arrived at St. Louis, but I found the "Far West" was further west still, and, like the horizon, lay *a little beyond where we were*. But not so with the buffalo grounds and prairie dog habitations.

These were this side the horizon, and so, by the kindness of the commanding officer at Fort Riley, who let our party have two ambulances and two extra horses, with a couple of orderlies as attendants and guards, we started on our way thither. At Fort Ellsworth we took four additional horses, and, after two days' travel, brought up at an engineers' camp on Smoky Hill River. We now began to smell buffalo—figuratively. We were on their feeding grounds. The wild prairie spread all around, like a land ocean, in rolling waves, with the prairie grass about six inches high, in great richness, waving in the wind, and perfecting the similitude of the sea. Here and there at rare intervals was a tree, like a solitary ship navigating the waste, and only in the hollows and by water-courses, was there anything approximating to a group or cluster. The feeling of entire loneliness and entire isolation, belongs to these limitless expanses. They are crossed frequently by buffalo tracks or paths, where the animals have travelled in single file, and marked plentifully with "buffalo chips," a phrase familiar to these regions, but quite inexplicable to the stranger till his own senses interpret it. As we have compared the prairie to an ocean, we may add, that it does not want *wrecks* to complete the likeness. As on the sea-shore, so on the soft slopes of the prairie lie the white timbers of many a majestic "man-of-war" buffalo, swift-sailing wolf, and scudding antelope. Their voyages are all over, and their stranded skeletons lie bleaching in sun and wind, while high over head sails the cormorant, like an eager wrecker, looking down with sharp eye to see if there is any *salvage* to be secured, in the shape of meat-morsels yet unpicked, or marrow bones, which the wolves have broken but not emptied. But it was not all *still-life*, or rather *dead game*. Ever and anon a large gray wolf would break cover from some slight hollow, where he had been drinking or sleeping, and go leaping away with a swiftness equal to that of the fastest horse. We rarely got a shot at them. They were very shy, and so similar in color to the buffalo grass, that we soon lost anything like a distinct view of their lithe forms and silvery fur, when once they

started on their long swinging gallop, and fled before us. Leaving camp at eight o'clock in the morning, with seven horses and two four-mule ambulances, we began to look out for buffaloes. We were armed with Spencer carbines—breech-loading rifles carrying eight charges, and pistols of various construction and calibre. After about two hours' ride over the prairie, we sighted a buffalo; one of a herd of five, feeding on a ridge. The buffalo affect the ridges of the prairies, probably because they afford a good lookout, and enable them to see approaching enemies. Ascending a swell in the plain, we saw the buffalo on another swell, but, what was more critical, the buffalo *saw us*, and was off at once, at a great pace, and we were after him. I soon found that the huge roan on which I was mounted, had nothing but his size to recommend him. He had no speed and no spunk. Whip and spur, plied with any amount of vigor, could not produce more than a solemn gallop. The horse seemed to consider buffalo hunting a humbug, which he was not inclined to encourage, and so he plunged along heavily and reluctantly. I soon saw that the longer I rode after the buffalo, the further I should be from him, so I fired my rifle at him, and, no doubt, hit him, for he was as big as a small hay-stack, but, as he would not stop to let me examine the wound, I cannot say where I hit him, nor how hard.

My companions, better mounted than myself, overtook the beast, and, ranging up alongside of him, fired their carbines and pistols as they were able. It looked like a fleet of gunboats attacking a frigate, and giving her their pivot long thirty-twos as they came abreast of her, only the frigate did not fire back—an important distinction. The buffalo, I noticed, acknowledged each shot as a race-horse acknowledges each prick of the rider's spur by a switch of the tail, and increased impetus. But the chase swept gradually away from me, and, after a while I found myself alone on the prairie. The buffalo and his pursuers had vanished into space. Evening was closing around me, and I was not comfortable. The idea of a night on the prairies without companionship, was not pleasant. My big roan,

as he stood with drooping head, seemed to think so too, and said as plainly as a horse could say: "I told you so—see the end of all my galloping!" The prairie was profoundly silent. But, by and by, I thought I heard voices, and, ascending to the top of an adjacent rising ground saw, to my great relief, the forms of my companions returning from the chase, which had been unsuccessful. On another occasion, however, we bagged a buffalo, and found that seventeen balls had entered his body before his career had been closed, and his horns, and hoofs, and hide, and hump, and other belongings had become the property of the eager hunters. And here let me offer my individual decision, that buffalo meat is not what it is said to be. Even with the keen appetite of the prairies, it does not compare with a good beef-steak or sirloin, being coarser in flavor. The beast, itself, is also unlike all descriptions of him that I have ever seen or read. There is an indescribable savageness about him. His long hair lies matted over his head and shoulders, and his eyes look out with a fierceness hardly to be realized, unless witnessed. He gallops along with his head low down, as if in act of charging, and the strongest feeling of a novice, in hunting him, is to get out of his way as quickly as possible.

The rail is driving him rapidly away, for the locomotive roars louder and runs faster than he; and the Indians on the prairies share in his disgust, and will go with him to distant feeding grounds, whenever this "war-path," as they call it, is completed.

The "prairie dog" (*Spermophilus Ludovicianus*), who frequents the same region, is a most interesting and curious little creature. I do not know why he is called a *dog*, unless it be for his bark, for he is not a carnivorous animal, but a rodent, living in large communities and occupying vast burrows, which make the ground dangerous to horsemen.

A great number of little hillocks appear on the surface of the prairie, and, perched on the top of many of these, you see these little fellows sitting on their hind legs, like squirrels. At the first alarm, they give a sharp bark and tumble into their holes, tossing up their heels in the most



comical manner. But the next moment, out they come again to take a second look, and see "what's in the wind."

Two of these had been taken and partly domesticated, and were living in an inclosure at the camp. There they had built their underground dwelling with dome-like entrances, and it was singular to see their fearlessness in presence of dogs twice and thrice their size. No sooner did one of the canine tribe enter the inclosure, than the little creatures were at him with a sharp bark and swift rush, and Ponto vanished with all convenient speed through the nearest opening. Snakes and owls are often found in the underground abodes of the prairie dog, and were once supposed to be harmless boarders. But these snakes, when dissected, were found full of the bones of the young animals, so it is fair to conclude that they are not boarders, but burglars.

Owing to the hurry and difficulty of transport, I was unable to obtain any photographs of the curious objects found in this strange and interesting region, but, thinking a *word picture* of the place and its occupants might not be unacceptable to the readers of the *Philadelphia Photographer*, I send this brief sketch of "a photographer among the prairie dogs and buffaloes."—  
(From Notes of J. C. B.)

### On the Preservation, Restoration, and Perfecting of Negatives.\*

BY WM. ENGLAND.

THE subject of the paper I have the honor of reading before you this evening I shall divide into three parts: first, the preservation of negatives; secondly, the cleaning and restoring of old negatives; and, thirdly, reducing the over-intensity of negatives after having been varnished, or increasing the intensity of varnished negatives if found necessary.

It must often be a source of regret to many photographers to discover, from time

to time, the partial or entire destruction of valuable negatives of eminent men, or of scenes that have passed away, never to be replaced.

I am afraid that, unless some attention be given to this subject, future generations will see but little of the productions of this; and perhaps, for the credit of photography, it would not be regretted that much that is unworthy of preservation *should* pass away. But photography *has* also produced much that is *worthy* of preservation, and much that will be of as great, if not greater, interest to future generations than to the present. What priceless treasures *now*, would be negatives of the great men whose names are inscribed in history's page, and with whose features we are familiar only through the delineations painters have left us!

In considering the best means of preserving negatives, the question arises as to which is the best varnish to use. As yet, we are not in possession of any that answers all the requirements of the case, namely, a varnish that will perfectly protect the film against atmospheric influence, and at the same time be sufficiently hard to withstand the wear imposed by long periods of printing. The varnishes at present employed, in a short time become rotten, and lose their powers of expanding and contracting with the plate, the consequence of which is a splitting of the film.

Mr. Claudet called attention to this subject some years ago, and also to a very ingenious method of filling the cracks with lamp-black, which answers very well on a negative where but few prints may be required; but in a little time the negatives become useless. It is certainly a painful prospect, in connection with photography, to know that, unless something can be done to preserve our negatives, the loss will be alike a regret and reproach to photographers. If we are taunted with the want of permanence in our prints, let us at all events save those originals, namely, the negatives, that may, in some future day, render us proofs that may be permanent.

I have given considerable attention to this subject, from the fact of having lost many valuable negatives some years ago. After having tried various kinds of varnish,

\* Read before the London Photographic Society, January 8th, 1867.

to preserve the film against splitting, the only remedy I found successful, was to revarnish from time to time as found necessary. I have now, however, found a method which promises to be of much more value. In looking over a box of transparencies taken some years ago, and which had not been required, I was much struck with their good preservation, although negatives placed on the same shelf, and not used for some years, were totally destroyed. I recollected that on the glass prints I had poured a solution of India-rubber before applying the varnish. I have since treated negatives in this way, which, too, makes them so impervious to damp, that they may be placed in water for many hours with impunity. A specimen I have here has been soaked in water twenty-four hours, and without the slightest injury. Of course this is a very severe test, and one that every photographer will not be likely to expose his negatives to; but I think, with the knowledge that this may be done, we have some guarantee that this method will protect the collodion film against moisture, which no doubt causes the varnish to split, and the film with it. The varnish on some negatives that I have placed under water for a considerable time, has shown the reticulated appearance we see in a damaged negative; but the picture remained perfectly good, and, on removing the varnish and revarnishing, was as sound as when first taken. The coating of India-rubber seems to penetrate the collodion film, and to give it elasticity and power to resist damp, and at the same time to make it so independent of the varnish, that the latter may easily be removed at any time that may be found necessary. The mode of applying the India-rubber solution is so simple, that little need be said upon the subject.

After having warmed the plate to expel all moisture, pour over, the same as in varnishing, a solution made of India-rubber dissolved in benzole, of about the consistency of treacle; this will set rapidly. Allow the plate ten minutes or a quarter of an hour to dry, by which time the benzole will have evaporated, leaving an extremely thin film upon which the varnish may be applied as usual. I firmly believe that negatives so treated, will be found to resist moisture and

changes of temperature which would have a serious effect upon those varnished in the ordinary way, and that splitting of the film would be a thing unknown.

I now come to the second part of my paper, which treats of the preservation of old negatives. Every operator knows that after a negative has received much wear, the surface becomes discolored, and the varnish too rotten to protect the film properly. When such is the case, the old varnish can be removed, and a new coating applied, without injury to the negative, in the following manner, which probably may not be known to every one:

Into three dishes, about the size of the negative, pour a little methylated spirit; place the negative in the first dish, and, by giving the dish a rocking motion for a few seconds, cause the spirit to flow gently over the surface of the negative; now remove the negative into the second dish, repeat the operation of rocking, and so on to the third dish. The plate may now be removed, and reared on blotting-paper till dry, after which it may be revarnished in the usual way. About half a dozen plates may be passed through these solutions, after which the spirit should be renewed, particularly that in the first dish, which will be found full of particles of dirt and old varnish, together with a little free nitrate of silver, which the varnish film had absorbed during the printing operations. A liberal quantity of spirit should be used in the second and third dishes, sufficient to give the plates a thorough washing; otherwise the negatives, when put in use again and exposed to the light, would darken considerably, from the fact of the collodion film having become impregnated with the free nitrate of silver before mentioned, during the removal of the varnish; and, should the negative be weaker than desirable, this fact may be taken advantage of to increase the intensity. Old negatives which have become discolored and dirty by use, and from which good prints could not be obtained, will, by being revarnished in this manner, regain their pristine purity, and be found as good as when first taken.

I may here remark that, after the removal of the old varnish, and before applying

the new, the film is in an excellent condition to work upon with a soft black lead-pencil, and any little imperfection remedied, or high light strengthened. Pin-holes should, of course, be touched out with a little Indian ink.

The third and last portion of my paper will include some remarks upon a method of increasing or reducing the intensity of varnished negatives, and which answers the purpose admirably, and without the least drawback, save the trouble. Run an edging of white wax round the plate, and proceed to remove the varnish in the manner before directed; then, while the plate is still wet, if it is desirable to reduce the intensity, pour over, say, an ounce of alcohol, to which has been added a drachm of a saturated solution of cyanide of potassium in water. Allow this to pass freely over the plate until the necessary reduction of intensity is obtained. The negative should then be thoroughly washed under a gentle stream of water, and, after drying, varnished in the usual way. It is necessary to use this large proportion of alcohol with the cyanide before mentioned, or the solution will not take kindly to the film. Should the negative to be operated upon require intensifying, it may be done to any extent by the following method: Dissolve twenty grains of pyrogallie acid in one ounce of alcohol, and, after the removal of the varnish from the film, pour over the plate a portion of the pyro solution, to which a few drops of nitrate of silver have been added, proceeding in the same manner as when working upon a wet plate. When the necessary intensity is gained, wash thoroughly, and stand the plate to dry. Should a negative require but a slight intensification, I prefer adding a few drops of chloride of gold to a little alcohol, and using this solution instead of the pyro and silver. The plate, by this method, need not be washed, but may be revarnished at once.

I have been induced to put forward these few remarks, dictated by practical experience, in the hope that some of those eminent photographers I see before me, may give us some of the many interesting facts which almost daily come under their notice, bearing upon these subjects.

## INGENIOUS APPLIANCES IN PHOTOGRAPHY.

At a late meeting of the South London Photographic Society, Mr. Ennel described a number of ingenious "dodges" in connection with photography, the nature of which will be ascertained from the following remarks:

The volatility of ether renders the filtration of collodion at all times a nice operation, and it is important to conduct this often-necessary operation in such a manner as to prevent the ether from escaping.

Mr. Ennel employs the ordinary funnel, with a tuft of cotton or similar material to filter the collodion through in its downward passage. He prevents the escape of ether by having the top of the glass funnel closely covered by a plate of glass, and he establishes an equilibrium between the atmosphere in the funnel and the bottle in which the collodion is being filtered, by means of a small piece of bent glass tube which communicates, through the filter, between the two vessels, the upper end of it standing, we need scarcely remark, above the surface of the collodion in the filter.

In connection with filtering, Mr. Ennel showed a very neat method of decanting a bottle of any size—even a carboy—into a filter, drawing out every drop of its contents in just the proportion in which it passed through the filter, and without requiring any attention whatever when once it had been set in operation.

The bottle intended to receive the filtered liquid has the funnel inserted in it in the usual way, and, by means of a suitable filter-stand with sliding ringed arms, the bottle containing the solution to be filtered is sustained bottom upwards, and with its mouth dipping down into the funnel. When in this position, the liquid will, with a gulp, immediately escape into the funnel; but, as at the same time, and by the same means the lower end of the funnel will be submerged in the fluid which has escaped, no further escape of fluid from the inverted bottle can take place until the quantity thus supplied to the funnel be filtered through to such an extent as to fall below the lower orifice of the filter, when by an upward rush



of air another discharge of the fluid contents of the bottle overhead takes place. The same thing is repeated until the inverted bottle has been thoroughly drained of every drop it contained. It will be seen that this is accomplished in the most manageable and self-acting manner that is conceivable.

Another "dodge" was the following: The construction of the ordinary washing-bottle is well known. Two tubes of glass are inserted through the cork into the bottle containing the distilled water to be employed for washing. The exit tube dips down to the bottom of the bottle, while the other merely passes through the cork, and, when blown into, causes such a pressure on the surface of the water as to force it out through the small orifice of the exit tube. Mr. Ennel's improvement on this consists in having fastened, by suitable cement, a large hollow ball of India-rubber on the end of the tube where the mouth has hitherto been applied, and by simply pressing or squeezing this ball the liquid is forced out in the same manner as if the force of the lungs had been employed to effect it.

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### OUR PICTURE.

As our readers will observe, the embellishment this month is another example of the new and beautiful Cabinet size. This new size continues to grow in favor, and will, ere long, be the leading feature of every gallery. Some of our prominent photographers have found decided encouragement in making it, and have, at the expense of considerable means and good taste, made extended preparations for its introduction. This we are glad to know; and such being the case, we desire to fulfil our mission by keeping the thing before the people, and by our large circulation of beautiful specimens, to help the new effort along to popular favor and demand.

The picture by Mr. Notman, in our January issue, did much good in this way, and induced many others to follow him. Some seem to be disappointed because the demand for these new pictures is not as great as their good work and hopes led them to expect. These complaints, how-

ever, generally come from those who have done very little towards furthering the movement. If such parties will look back to the time when the *carte mania* began, they will recollect that it was *not great at once*; they will also remember with what reluctance they began to make that size. New lenses and boxes, new backgrounds, furniture, and accessories, had to be obtained, and new effort put forth, and lo! what a business resulted! Photography is now lifting its proud and triumphant head above such diminutive productions, and we, as its interested votaries, should make corresponding effort to assist it. *The new size will go*, be assured, if *you* are disposed to push it as you should. We are glad to see many doing this, and to know that the number is rapidly growing. Among those who have taken the lead, are Messrs. Wenderoth, Taylor & Brown, of our city, who made the negatives and prints for our present issue. If the good taste and skill displayed in this picture be imitated by our working readers in their work, it will lead to a new increase of business and prosperity. It is a specimen well worthy of study and of competition, and if those who have not done much in this direction, have any energy and pluck, they will strive to excel even this. Mr. Wenderoth took especial pains with his subject, who kindly assented to stand for our special purpose, and to both we are under great obligations. The lady who has so kindly favored us, is one of those, the history of whose "trials" and "privileges" in the photographic line, appeared in the *Photographer* some time ago, and who has added very materially to her list of trials, as an amateur photographer's wife, by consenting to sit for the number of negatives required for the printing of this edition. We sincerely hope that her "privileges" will soon outweigh her "trials."

As our readers will like to know how such excellent pictures are produced, we publish the information in the following note from Mr. Wenderoth:

"I regret that they are not so uniform as they might be, but, as the work in consequence of numbers, weather, and so forth, had to be done somewhat in a hurry, you and your subscribers must make some allow-

ance for it. It is almost unnecessary for me to say anything on this subject, as every photographer knows well enough that it is almost impossible to turn out the work one day like the other; but as these prints are only intended as illustrations in general, and not as samples of excellency, I hope that our brother photo's will not be too severe on them. The formulæ by which they were produced, are as follows:

## COLLODION.

Sulph. Ether, . . . . 8 ounces.  
 Absolute Alcohol (95°), . . . 8 "  
 Anthony's Neg. Gun-cotton, . . 64 grains.  
 Iodide of Ammonia, . . . . 64 "

(I prefer a sample that contains a good amount of free Iodine.)

Bromide of Magnesium or Cadmium, 40 grains.

## SILVER BATH.

40 grains of Magee's Nitrate of Silver, saturated with Iodide of Silver.

"This bath is perfectly neutral, and will give fine clear negatives; it need only be strengthened and kept clean. No nitric acid is used; and when, after awhile it has become charged with ether and alcohol, boil down to half its bulk, replenish, and it is as good as ever.

"The plates should be kept in it in winter rather longer, but never less than five minutes.

## DEVELOPER.

The common Iron and Acetic Acid. No Alcohol. No redeveloping of the negatives is necessary.

## PRINTING.

*Silver Solution.*

75 grains Ammonio-nitrate of Silver. Fume the paper 10 minutes in a box large enough to free give circulation to the fumes.

"The paper, in whole sheets, was put down on the silver solution and taken up immediately, making from twenty-five to thirty seconds' contact. I have found that, with strong silver and short contact, the paper keeps whiter, and when unfumed, will the next day be as white as when first silvered. As it is the object to silver the albumen, and not the paper underneath, I find that this method accomplishes that very successfully. Some paper repels the silver very strongly, and in drying looks greasy and forms little round spots; this is effectually overcome

by taking a Canton-flannel pad and rubbing the albumen over carefully, just before laying the sheet down on the silver solution. As this greasiness and spottiness has been very annoying to many photographers, and I have never seen mentioned a remedy for it, this should have particular attention. Mr. Clifford, who superintended our printing department, was the first, as far as I have seen, to practise this simple and effective remedy:

## TONING BATH.

½ grain Chloride of Gold to 1 ounce of Water neutralized with Bicarbonate of Soda, added to 23 ounces of Water, a few grains of common Salt, and a few crystals of Citric Acid.

"This bath will give any tone desired; but for each tone, the print should be of the proper strength. Fix in hypo soda of the usual strength."

Like all other experience, we find some things in Mr. Wenderoth's that are fresh, new, and useful. The paper on which these prints were made, was kindly sent us by the manufacturer, Mr. Edward Liesegang, of Elberfeld, Germany, for the special purpose of printing a picture for the *Photographer*.

We are not aware that Mr. Liesegang's paper is for sale in this market, but, no doubt, it will be ordered by importing stock-dealers.

Mr. Liesegang furnishes his formulæ for working the paper also, and as some useful hints are also contained in them; and as they are different from Mr. Wenderoth's, we reproduce them below:

"In the preparation of this paper, it has been the aim to procure an article which would give all the advantages of the negative; particularly fineness of surface and brilliancy, were sought after, as also easiness of toning and good keeping qualities of the whites. The hard and very fine surface of the paper causes close contact with the negative; the picture therefore becomes sharper, and the details of the deepest shadows are reproduced.

"A comparatively weak silver-bath can be used for sensitizing this paper:

Distilled Water, . . . 100 grams.  
 Nitrate of Silver, . . . 10 "

"A few drops of nitric acid are added to make the bath acid. The paper is floated four minutes. Every time before a new sheet of paper is floated, the dish containing the bath is moved a little, as the upper layer of the fluid has lost a certain amount of silver. When the bath, after being used for some time, becomes discolored, a crystal of salt is added, or ammonia; it is then well shaken, and after filtration or decantation it will be clear again. It is best to keep it in a stock-bottle. When it is poured from the dish into the stock-bottle, it should be shaken, and when using it again it should be carefully decanted. It should be kept of a uniform strength by adding fresh nitrate of silver. The lost silver should be replaced by adding from a solution of 15 parts nitrate of silver in 100 parts of water. A strong clear negative will always make the finest prints, but a weak, thin negative can be made to yield good prints by fuming the paper.

"The prints should be rather strong (over-printed).

"The paper will take, with almost any toning-bath, a rich fine tone, which can be made, according to taste, purple, black, lilac, or brown.

"In the following formulæ there is always 1 part of chloride of gold to 1000 parts of water taken :

## FORMULA I.

Water, . . . . .	1 litre.
Chloride of Gold, . . . .	1 gram.

"This solution will turn blue litmus paper red; a saturated solution of bicarbonate of soda should be added until the litmus paper resumes its blue color. When the yellow color of the solution has disappeared, it is fit for use (in about one or two hours). As this bath will not keep, no more should be made than necessary; this bath gives purple-blue and chestnut-brown tones; the latter, when the toning has only continued for a short time.

## FORMULA II.

Water, . . . . .	1 litre.
Chloride of Gold, . . . .	1 gram.
Acetate of Soda, . . . .	30 "

"This bath cannot be used until 24 hours

after its preparation. It will give blue, black, and lilac tones.

## FORMULA III.

"The following bath works very beautifully; it yields splendid black tones, and is very sure in its operation :

Chloride of Lime (fresh alkaline), . .	3 grams
Carbonate of Lime, . . . . .	8 "
Acetate of Soda (fused), . . . . .	20 "
Water, . . . . .	100 "

"Of this solution, 20 grams are taken to 1 gram of chloride of gold and one litre of water. The bath keeps; it cannot be used at once, but must stand for 24 hours. If it should injure the pictures, it should be diluted.

"The fixing is done by a solution of 20 grams of hypo and 100 grams of water, or in a solution of sulphocyanide of ammonia in the same proportion."

Now let the ambitious and earnest photographer take new courage, and strive to improve his work. We have several splendid specimens for their study in preparation, and hope that our purpose in producing them will be accomplished, *i. e.*, the elevation and improvement of our beloved art, an improvement in business, and increased prosperity for *all* of our many subscribers.

## CABINET PORTRAITS.

WE are receiving beautiful examples of this new size from all directions. Be they beautiful or not, we are much pleased to see so many making the effort to introduce them. If this effort becomes general, the new size will soon become popular, and a profitable one to make. The great trouble is to get those who should set the example to go to work at them. Some of our leading city men are very slow about it, declaring their belief that "it will not take," or that "it will take something more than a new size to revive business;" another adds, "I want to see first whether they are going to go, before I buy new backgrounds, accessories," &c., &c. Now, good friends, who is going to find all this out for you? Are you not quite as much interested as any one



else? Should you not venture a little, then, as well as others, towards giving the thing an impetus? Certainly you should!

If we may repeat the words of our excellent contemporary, the *News*, "our own conviction is, the reason the new size has not become as popular as it ought to be, is simply the want of unanimity of action in giving it an impulse. As we stated, when we first recommended the project to the public, success, in such a matter, must depend upon the hearty, unanimous efforts of photographers themselves. It rests with them to give the necessary impulse to this, or the introduction of any novelty, which may revive the waning demand for portraits, consequent upon the satiety produced by the card mania." Make the effort then, American photographers. Do not be timid. In the first place, it is a great thing to have faith in what you undertake; and, secondly, "Faith without works is dead," saith the Scriptures. Make arrangements that leave no doubt as to your belief in success. There is a great deal in the *appearance* of things. You should get up some nicely printed mounts, albums, display mats, and frames. These are all ready in the hands of our enterprising dealers, to whom be all praise for venturing to make them *before* the demand arose. Nothing can be more tasty and beautiful than the variety of frames gotten up by the Scovill Manufacturing Company, and the Willard Manufacturing Company; than the albums by Mr. William Flint, and Messrs. E. & H. T. Anthony & Co., or the display mats and passepartouts by the Pattberg Bros.

They are already reaping the reward they deserve for their enterprise. In our humble way, we have endeavored, and shall so continue, to give the new movement all the impetus we can. The first example of the new size that came to our hands, was sent from England, in November last, by our friend Mr. G. Wharton Simpson, who has done, and is doing, much in England towards popularizing the cabinet portraits. Very soon after this a parcel came from Mr. Notman, with a proposition to enable our readers to see the new size, by printing from one of his beautiful negatives for illustration in our January number. The time was short,

but Mr. Notman accomplished it, and it gave an impetus to the new movement that was truly wonderful. In our present issue we produce another beautiful specimen by Mr. Wenderoth, and have others in preparation. In this way we shall endeavor to encourage and help the movement, and glad we shall be, if we can succeed in adding to the now low state of funds of many of our good subscribers.

Take hold with us in real earnest, and you will meet your reward in time. There is no use of your *talking new size* to your customers, unless you have something to show them. If you have not already done so, get an album and some display mats; fill them with specimens, and *make a show*—a "*grande expositione*," and then you can laud them to your customers. Mr. Carbutt and others write us, that it is their plan to make negatives of their most likely customers, when they call for other work, and show them a proof. The result is, the parties invariably order duplicates. This is a good plan, and even should you give a few away, it would pay in the end.

Now we hope you have resolved to try. If you have, permit us to throw out a few hints that may be useful to you in beginning. You will find a greater scope for the display of your good taste than you have found in cartes-de-visite. The absence, then, of the display of that good taste will be more evident, should you not exercise it.

A great help to these new pictures is the introduction of a tasty background and sundry accessories. In using the latter, care should be taken to arrange them with some regard to the character of your subject. No rule can be laid down. You must make this a study and a care. It is too common, not only in photography but in the book illustrations of the day, to find the accessories of the pictures at entire variance with the character of the subject. For instance, in reading a juvenile work some time ago, a family was introduced who were very humble and poor,—the mother a seamstress, the son a newsboy. We have them represented by a woodcut, sitting in an elegant drawing-room, the walls covered with handsomely framed pictures, and the poor woman reclining in an elegantly upholstered chair

with her feet upon an embroidered stool! The newsboy son standing by her with his papers under his arm.

Now what we mean is, do not combine out-door with in-door accessories. We have seen a lady represented sitting at a window and a lot of drawing-room furniture out of doors for her to look at. The placing of the accessories should be watched also.

In one of the cabinet pictures before us, the hat of the subject has been introduced. This is very well, but it has been placed so far in the foreground and on the floor as to make it appear of stupendous size and many times too large for the owner. Take care of this. In another, we notice a very pretty little vase standing on the very edge of a table,—a perilous place for the vase, and a bad one for the picture. Do not introduce figures that are too large, and do not place your subject between two chairs. What you do introduce, introduce properly. Ordinary cocoa matting makes a very nice covering for the floor. Remember your lessons in lighting. It has been the custom of many of you to avoid making standing positions. In the new size, you will find they are demanded. Be careful then to change your method of lighting, and when you are lighting the lower figure not to forget that all-important part, the face. Several of the pictures we have received are faulty in this respect.

Some of the most excellent examples we have are from Mr. George H. Fennemore, who is now with Mr. F. S. Keeler, southeast corner of Eighth and Market Streets, Philadelphia. It is seldom that we see more beautiful examples of photographic skill and manipulation. Mr. Fennemore is really master of his business. These specimens before us are wholly the result of his careful and judicial working, as he made them from bath and collodion to printing and toning. The negatives are delicate and full of detail and softness, and the prints are the same. The positions and the lighting are excellent. Some of the prints are on the new Alabaster paper, and we hope in our next number or the following one to give our readers a chance to verify our statements both as to Mr. Fennemore's work and the excellencies of Alabaster paper.

The negatives are made and are being printed as fast as the fickle weather will permit.

Mr. William Notman is continually delighting us with unequalled specimens of his labors in the new direction. Since his Sarony Machine came to hand he has produced some wonderful effects which he has made entirely his own. We refer specially to his winter scenes, in which we have snow-covered landscapes, wintry clouds, men and women walking with snow-shoes sinking in the snow and partly covered with the falling frozen element, breasting the storm which beats in their faces. The *skating* pictures are the most wonderful, however. Here we have figures in all the graceful and easy motions of the scientific skater. Some bended forward, some backward, and others in the act of striking out; some with one foot in the air and arms uplifted, and others with arms folded gliding smoothly along and away from us. The effect of *motion* is truly wonderful and perfect. This is not all. The reflection of the figures in the scarred and cracked ice is also carefully produced with great effect. Great is Notman, and great Sarony's Machine.

We have also received some very excellent specimens from Mr. J. B. Roberts, Rochester, N. Y. They are far beyond the ordinary run, and certainly such work must bring him plenty to do.

Messrs. John S. Notman & Co. have also favored us with a few cabinet portraits made in their new atelier in Boston, where they are doing a good work in giving the new size a start. One picture of a little child is particularly beautiful, both as a photograph and as a picture. As a source of encouragement to others, we would state that Messrs. Sherman & Co. inform us that they have already furnished 2000 cabinet mounts to one of the leading photographers in our city.

## PHOTOGRAPHY IN GERMANY.

### *On Positive, Negative, and Original Retouching.*

THERE was a time in the history of photography when a picture without retouching was a rarity; when in every well-patronized atelier you would see the Knights of the

Brush by the dozen, transforming the apes as they emerged from the camera into human beings, covering the sins of the operator with black and white.

When the carte-de-visite was introduced a remarkable revolution took place. These small pictures had to be furnished cheaply, and the photographer was forced to perfect his mechanical operations to such a degree as to dispense with the cost of retouching, and this succeeded in a short time to such an extent, that retouching was put in the corner and ridiculed, and advertisements of "pictures without retouching" could be found in all the papers. I know eminent photographers who at that time were so excited against retouching, that they were almost willing to send pictures from their atelier where the spots even had not been covered over. On the other hand, there were others who did not hold this barbarism, but who, whenever the artistic value of a picture could be enhanced by a few strokes of the brush, took recourse to it, and the public certainly appreciated their pictures more, and did not care which part of it had been finished by the artist, and which by the sun.

It was about this time, that a German queen sat for one of the photographers "without retouching." He, of course, tried his best, but always "without retouching." The negative is faultless, the print is excellent, the picture is without spot or blemish. The scruples of a friendly artist on the too dark shadow or too hard half tones he ridicules, and hastens triumphant to the royal palace; he is introduced, and her majesty condescends to receive the picture in person.

"Will you please to show me the negative?" she asks the artist coldly.

He hastens to comply with her request—her majesty was not unacquainted with the photographic art; when the artist returns and hands her the plate, she examines it and dashes it with her own hand against the mantel-piece. Her majesty never sat again for a photograph. That was the fate of a picture "without retouching." The artist mentioned above, who had his scruples about the artistic effect of the picture, is at present one of our first photographers, but "with retouching," and you, yourself, have

had occasion to admire his pictures. So then at last the much-abused retouching has re-occupied its place of honor, only that at present the negative plate is retouched instead of the print. It seems that the latter plan had first been practised in Germany, and I, myself, saw retouched negatives of Haufstengel in Dresden, which were taken ten years ago.

The principal material for this process is, and always has been, India ink; all the other pigments which have been proposed for this purpose may be valuable for certain purposes, but they are not generally applicable. My friend Grashof recommended some time ago "lead-pencil retouching," and he, himself, works splendidly with this material; but this requires, as I have found myself, a good deal of practice and great care; another drawback is, that it is not near as easy to erase wrong lead-pencil marks from the varnish as India ink marks; besides lead-pencil does not in many cases cover sufficient, and the pencil has often to be sharpened during the operation; for these reasons I prefer a brush and India ink.

I mix India ink with a little gum Arabic and paint on the varnish side of the picture; larger portions of the shadows which appear too transparent in the negative are retouched on the back. Very often it is difficult to cover a plate even and homogeneous. The strokes of the brush remain too plainly visible. In this case there is an easy method for covering large surfaces. The back of the negative is covered with varnish, containing a sufficient quantity of dragon's blood to give it a reddish color; this varnish is removed from the places that have been sufficiently exposed.

Not long ago I took a large picture of a museum with statues; the walls were brown; in spite of a long exposure, I only obtained a faint outline of the walls, and the print showed a row of white statues in a black space. I now covered the back of the negative with the varnish mentioned above, containing dragon's blood, and removed it from the places that had been sufficiently exposed. The result exceeded my most sanguine expectations. I cannot give a numerical composition of the varnish. The capacity for excluding light depends on the



color; the deeper the color the more the actinic rays will be excluded. If the action of the varnish is to be tested beforehand, a clean plate of glass should be covered with it one-half, and a piece of silvered albumen paper exposed under it. It is then easy to perceive how the paper behaves under the varnished and unvarnished parts of the plate.

With small portraits this process will be seldom required, but with larger pictures, with landscapes, interiors, or the reproduction of oil paintings, the process is very valuable. The main thing here, as everywhere else, is practice and experience. I, myself, when I practised retouching, have made experimental negatives over and over again, until I succeeded.

At first sight, the whole aim and purpose of negative retouching appears to be to make certain spots too transparent that are less so, and to soften certain hard tones, but at present we go a great deal further. Mr. Milsher, in touching up a negative of an oil painting in which a table-cover had not come out distinctly, drew the whole pattern with the brush. Henry Graf added a chignon to a negative; and Biedel, in Königsberg, puts the whole background on the negative. I will mention yet, that another photographer, in taking the portrait of a soldier, added the order of the red eagle, which the original had received after the negative had been taken; this little incident pleased the possessor of the order more than the reception of the order itself. But I almost fear that I am getting tedious, and your readers will smile about German "thoroughness." Formerly, positive retouching predominated; after that, came negative retouching; and now, lastly, photographers have gone a step further, and we have retouching of the original. Taking it all in all, this is nothing new either, for I remember well what excitement the pictures of Parisian actresses, with their faultless white arms and necks, created here; not a trace of retouching could be discovered. At first it was believed that the negative had been worked over, till it turned out afterwards that the original had been retouched by means of powder and paint. There always has been a prejudice in this country against this kind of retouching; now, how-

ever, people are becoming a little more tolerant, and I, for my part, must confess that I cannot see any harm in it. The photographer must know, himself, how far he can go; the application of a little powder is only advisable on the hair on the dark side of a person or on a dark beard. My friends, Loescher and Petsch, have frequent recourse to this, with *carte-de-visite* negatives, where generally four pictures are on the same plate. This is of decided advantage, but original retouching admits of far greater latitude in landscapes. Paint and powder are out of place here, but knife and hatchet take their places. Robinson describes in the *News*, such an original retouching, where he threw pieces of rock in a river in order to break the monotony of the surface of the water. An intelligent photographer will find hundreds of ways to conquer the imperfections of nature.

One word more about a very unpleasant accident in regard to this subject, and which, no doubt, has happened to other photographers. A very able photographer here, who always retouches his pictures with the greatest care, was told that his pictures became covered with bluespots; the matter appeared incredible, but, nevertheless, it was true. The India-ink which he had used for the purpose, was an imitation made out of a blue and brown pigment; the brown color had faded, leaving the blue behind. To an accident like this, many of the specimens at the Paris exhibition are liable. Grashof recommends for this kind of retouching, genuine India-ink mixed with a little Vandyke red. The Vandyke red is added in order to produce a tone similar to the photograph.

DR. H. VOGEL.

BERLIN, February 22, 1867.

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## PHOTOGRAPHIC SUMMARY.

BY M. CAREY LEA.

GERMANY.

*After-intensifying.*—Mutterer recommends the following intensifying liquid: Corrosive sublimate,  $\frac{1}{2}$  ounce; bichromate of potash, 1 ounce; water, 1 quart. Which solution may, if preferred, be further diluted.

Another method is as follows: Nitrate of lead, 20 grains; citric acid, 10 grains; corrosive sublimate, 60 grains; distilled water, 1 pound.—*Phot. Correspondenz.*

*Collodio-chloride.*—The following method is editorially recommended in high terms in the *Photographisches Archiv*:

Dissolve, by heat, 120 grains of nitrate of silver in 1 drachm of water. Pour this into a bottle containing  $6\frac{1}{2}$  ounces of absolute alcohol. In cold weather it is better to stand the bottle in warm water, otherwise a portion of the silver salt may separate out. Add 160 grains of good pyroxyline, and shake well. Then add  $7\frac{3}{4}$  ounces of ether, and shake again. The collodion will now have a grayish-white look. Only in warm weather, or in case the solvents were not of full strength, will it be clear. Add now, 12 drops of Canada balsam.

In another bottle, dissolve 15 grains of chloride of lithium, and as much powdered tartaric acid in  $1\frac{1}{2}$  ounces of alcohol. Add this, drop by drop, to the collodion, shaking constantly. If poured too rapidly, the precipitate of chloride of silver becomes too coarse, and falls to the bottom instead of remaining suspended. Of course, all this must be done by yellow light; cover the bottle with dark paper or tin-foil.

The collodion is now milk-white — by transmitted light, orange-red. It keeps long if well prepared. The advantage of the lithium salt lies in its greater solubility and its small equivalent, whereby little is needed. And so little is in fact required, that its higher price becomes unimportant (1 ounce to about 30 pounds of collodion).

Citric acid gives the picture a reddish tone; succinic and phosphoric, a dirty brown; tartaric gives a much better tone. The editor gives the preference to English flashed opal glass, over any other that he has tried; and, for a copying frame, those in which the sensitive plate is supported by a pneumatic holder.

He also proposes to stick four wax corners on the negative, so that the plate can be replaced after examination in the course of printing. This is a modification of Professor Towler's idea.

Before proceeding to copy, the sensitive

plate should be dried at the fire, and the thick edges must be removed.

Over-print moderately; moisten with water; tone with alkaline chloride, 1 grain to 5 ounces of water, or with an old acetate or phosphate bath. Fix with weak hyposulphite, wash dry, and varnish with solution of copal or India-rubber in benzole. Varnishing is essential, as the image is much more easily injured by atmospheric influences than other prints.

*On paper.*—The same treatment may be applied to paper, except that the tartaric acid and Canada balsam are to be omitted, and a little glycerine used, which keeps the paper from rolling up. The formula is:

Alcohol, . . . .	2 ounces.
Ether, . . . .	2½ “
Pyroxyline, . . . .	1 drachm.
Nit. Silver, . . . .	40 grains.
Dissolved in—	
Water, . . . .	20 minims.
Chloride of Lithium, . . . .	5 grains.
Dissolved in—	
Alcohol, . . . .	½ ounce.
White Glycerine, . . . .	30 drops.

Good photographic paper is rubbed in with a mixture of albumen and starch, without salting; dried, calendered, and the collodion applied to it. Tone in acetate bath.

In a sulphocyanide and gold bath, good tones are got for vignettes. The prints turn first yellow, then brown, blue, purple, and rose, without losing strength. The tints change in the order of the tones, so that at one time the half-tones are red and the shadows blue and pink, and later the shades purple, and the half-tones rose.

The collodion for glass does not adhere well to the paper, although otherwise excellent.

*Landscape Photography.*—Rejlander remarks that he never photographs scenery in sunshine, but prefers days with bright clouds. If possible, he closes just a little short of the necessary exposure, and then, if a burst of sunshine comes, uncaps for a moment, and so gets a beautiful effect. This, by the way, is not new. Hardwick long since remarked that a burst of sunshine at the end of an exposure gave the best of all effects.

Prof. Towler, in a clever article on the

same general subject, remarks upon the advantage of exposing immediately after a rain, whilst the leaves are bright with moisture, and before the sun comes.

*Sulphocyanide of Ammonium.*—Arnerio has examined the causes of the red tint in the whites, which has annoyed so many who have endeavored to fix and tone with sulphocyanide and gold, and remarks as follows:

"If a little sulphocyanide be added to a gold solution, a reddish-brown precipitate is formed, which, by the addition of a considerable quantity of sulphocyanide, redissolves. The orange-yellow filtrate tones pretty well and quickly, does not reduce the print much, and leaves the whites pure, without producing the red color. But if, after the addition of the first portions of sulphocyanide, the re-solution of the precipitate be hastened by the addition of a few drops of ammonia or of an alkaline carbonate, the liquid becomes colorless as water. But this colors the half tints, and even the whites show color."

Sig. Arnerio states that after sensitizing with a 3 per cent. solution of nitrate of silver with nitrate of baryta, he succeeded in perfectly fixing the proofs with sulphocyanide, by leaving them in a saturated bath five minutes, washing, returning to same bath two minutes, and washing thoroughly. Such paper so fixed, he affirms, showed no sensibility to light.—*Camera Obscura*.

*Posing.*—The writer just quoted, remarks that it had occurred to him, that the embarrassed air that many sitters assumed at the moment of taking the negative, might be removed by attracting their attention in another direction,—for which purpose he had tried the effect of music, with very good results.—*Ibid*.

*Photographs in Various Colors.*—Mr. Gatty mixes strong solution of red prussiate of potash and nitrate of lead in equal quantities. After drying, he places paper that has been imbued with it under a negative in the sun, for about half an hour; the action is better if a damp cloth be kept behind it, with several thicknesses of paper between.

The print is then washed with plenty of

water; the image presents a pale-green color. By immersion in a weak solution of nitrate of iron, it becomes blue; if again it be passed through bichromate of potash, it turns green. Nitrate of copper gives a reddish-brown.—*Chemical News*.

#### GERMANY.

*Interiors.*—Creifels, in Cologne, answers the question: "How to take interiors without the windows becoming overdone?" to the effect that having formerly been much troubled in this respect, he had overcome it as follows:

Make the collodion with equal parts of iodine and bromine salt.

The silver-bath acidulated just enough to avoid fogging with the collodion.

Give a full exposure, a brief development with a strong iron solution, and redevelop with pyro without washing the iron off.

Fix with cyanide, and, if the plate seems too much veiled, pour over it a dilute solution of chloride of gold. This, however, is rarely needed.—*Mittheilungen*.

### PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

THE stated meeting of the Society was held on Wednesday evening, March 6th.

President Coleman Sellers in the chair, and a large number of members present.

After the reading of the minutes of the last meeting Dr. Wilcocks said, that as it had appeared to him that the last meeting had been a particularly interesting one, and as the minutes just read were by no means full enough, he had, with the assistance of two other members of the Society, prepared a report of the proceedings of that evening. This, he said, he desired to read. Leave being granted, the report was read, and ordered to be engrossed upon the journal of the Society as the minutes of the meeting of February 6th.

The President observed that information had reached him, that the report of his remarks at the last meeting of the Society, published in the *Philadelphia Photographer*, for March, had conveyed the impression to



members of the Committee on the Zentmayer Lens, that it had been his intention so far to transcend his province as to lecture them on their duties as committee-men. The report as given, unaccompanied by a statement of the circumstances, and the remarks of the other members present, could be so construed; and he wished publicly to assert that his motive had been misinterpreted. He felt it to be due to the members of the committee to make this explanation, and to assure them of his sincere regret for the publication of the report in such an exceptionable form. The rules of the Society make it imperative before publishing, to submit the minutes to the publication committee. This was not done, and hence the printing of much that was not entirely what it should have been, and the omission of valuable matter as given by the other members.

Mr. Tilghman and Dr. Wilcocks expressed their entire satisfaction, as members of the committee, with the explanation of the President.

The resignation of Mr. C. A. Wenderoth was read and accepted.

Mr. Wilson exhibited several American carbon prints, handed to him by Mr. Rowell, photographer, of Boston, who has been working at the process for six months. They are by far the best American carbon prints that have yet been shown to the public. They were much admired for their delicacy in the half tones.

Mr. Davids presented an instantaneous photograph, made with a six inch Globe lens.

Mr. Tilghman offered on behalf of Mr. Samuel Powel, of Newport, R. I., a corresponding member of the Society, a photograph showing the power of actinism to make manifest objects which are invisible to the eye. A band of blue mousseline de laine covering a checked dress, so as to conceal the pattern underneath, was unable to prevent the latter from impressing the negative. The check consequently became visible in the photograph.

Mr. Browne called the attention of the members to a number of doubly exposed negatives. A plate was exposed instantaneously, but the day being dark very little effect appeared to have been produced after development with iron. The nega-

tive was then washed for about three minutes, again placed in the holder and exposed fifteen seconds; a few drops of citrate of silver were poured on it, drained, and re-developed with iron: a very fair negative being the result. In this case the plate was replaced in the camera exactly as in the first exposure.

Another trial was then made with fifteen seconds' exposure; after development the plate was again washed, replaced in the holder, and exposed for fifteen seconds, on an entirely different view, the plate being turned so that in the second exposure the sky occupied the opposite part of the plate; the same developing process was used, which also produced a fair picture.

Other experiments were repeated with like results.

Mr. Browne also exhibited another plate doubly exposed, but under different circumstances. A negative had been made of a diagram for the Franklin Institute, which remained on the plate for two weeks. The plate was thoroughly cleaned, and exposed on a photograph for the purpose of making a copy, but on development with the new picture the lines of the diagram reappeared. The original negative had been fixed but not varnished.

A discussion occurred upon the subject of the mode of focussing adopted by Mr. Zentmayer with his lens, in which the President, and Messrs. Hurn, Tilghman, and Davids took part. It resulted in establishing the fact that Mr. Zentmayer's plan was to focus with the largest opening in the diaphragm, upon the most distant object, and then expose the plate with the smallest opening; the middle opening, as with other lenses, could be used where rapidity was of more moment than sharpness.

Mr. Corlies exhibited some negatives made by Mr. Fassitt and himself, with Mr. Borda's three inch Globe lens, and one of Mr. Zentmayer's, with an exposure of the same period, eighteen and twenty seconds, made at each time. It is impossible to see any difference except in the angle. The Zentmayer having one-sixth more angle than the Globe. The apertures in the diaphragms were the same compared relatively with the foci.

Mr. Wilson offered some prints from negatives made with the Zentmayer lens by Mr. Carbutt of Chicago, who spoke in warm terms of the merits of the lens.

A question arose as to whether there was a visual and a chemical focus in the Zentmayer instrument. Messrs. Fennemore, Davids, Graff, Tilghman, Browne, Hurn, and Wilson took part, the last giving the views of Mr. Carbutt upon the subject. The uniform opinion of all who had experimented with the lens was, that there was perfect coincidence between the visual and chemical rays.

Mr. Hurn criticized the remarks of the editor of the *Photographer*, upon the report of the Committee on the Zentmayer Lens.

Mr. Wilson replied at length to Mr. Hurn's remarks.

Mr. Wilson stated that business engagements requiring his absence from the city frequently, in the early part of the month, he found it impracticable to be always at his post as Secretary of the Society. He, therefore, with many thanks to the Society for his recent re-election to the office, regretfully resigned the secretaryship.

On motion, Mr. Wilson's resignation was accepted.

Mr. John C Browne was nominated by Mr. Wilson as Secretary, and unanimously elected.

On motion of Mr. Graff, seconded by Messrs. Tilghman and Browne, the thanks of the Society were tendered to Mr. Wilson for his labors as Secretary, which the latter received with a graceful acknowledgment.

On motion of Mr. Wilson, the Committee on Publication were discharged.

The President then appointed as the Committee on Publication for the present year, Messrs. Alexander Wilcocks, S. Fisher Corlies, and J. C. Browne.

Mr. Wilson exhibited some specimens of printing on Alabaster paper, for which the maker claimed all the detail and brilliancy of albumen paper, without the gloss.

Mr. Fennemore described the mode adopted by him in making prints on this paper, which did not differ materially from that in ordinary use.

On motion adjourned.

JOHN C. BROWNE,  
Recording Secretary.

## NEW YORK CORRESPONDENCE.

THERE are many things less difficult than that of reporting a meeting of a conversational character, where no regard is paid to the manual of Jefferson, or any other authority; where each gentleman asks and answers questions, as you would in any social gathering; or states his experience, or in "unvarnished tale," recites his theories together with the history of his discoveries. If you will admit the difficulty of such when present yourself, you will the more readily admit it when your report is made up from the statement of a friend; therefore, be forgiving this time, to the undersigned, and accept this much by way of introduction.

Prof. Ogden N. Rood occupied the chair at the last meeting of the Photographic Society. The first business of the evening was the examination of a number of ferro-carbon photographs, made by Mr. V. M. Griswold, on his iron plates, without the use of any silver. He combined carbon, in some way not explained, with his solution used in coating the plate. They were pronounced as very good, the tone being black.

Some of Griswold's ferro-photographs were exhibited, which were very fine. They were made on the ordinary iron plate, by first coating it with the solution prepared for that purpose, which gives a fine white enamel over the surface. The plates are next flowed in the usual manner with collo-dio-chloride, then printed under the negative as you would paper, and treated in the same way, when toned, fixed, and washed, giving an excellent substitute for the popular opal pictures on glass.

Prof. Rood spoke in reference to carbon prints, and he thought they could be improved in warmth of tone by the use of peroxide of iron, by which he thought they could be changed from the bluish or jet black tint, to the warmer chocolate tones. He said that a print of carbon should be permanent in every way; far better than an oil painting, which, no matter how well cared for, will both fade and crack; as to water colors, they were in his opinion less permanent than any well-made silver print. He related his experiments with water colors; by

such it was proven that if exposed to the sun's rays, some fade in twenty-four hours, while the best would not last longer than two years in *diffused* light without fading more or less.

All the lake colors faded rapidly; red and yellow ochre, and mineral colors generally, stood quite well, comparatively. Indigo and Prussian blue were by far the most lasting.

Mr. Chapman said, that the artists who colored photographs, often used Italian red and rose madder, both of which rapidly fade, and in his opinion should not be used.

Mr. Hull presented to the Society the *Photographisches Archiv*, a monthly edited by Drs. Liesegang & Schnauss, of Berlin, it having been received by him. Prof. Charles A. Joy was requested to acknowledge the receipt of the same, and to express to the above gentlemen the thanks of the Society.

Mr. Hull read a letter from "D. J. M.," of Ellington, New York; he asked for information as to some troubles he had with both collodion and bath. Inasmuch as he did not send any prints or negatives, it is rather a wild guess to state anything as an opinion. It would be far better when writing to the Society, to inclose some specimen of the trouble, if at all possible. He says his negatives give a mealy print, which he attributes to the collodion; he states his formula, which, if his materials are of good quality, is not in fault. The trouble was judged to be in the print, a difficulty not of the negative, but of the paper, or some of the processes through which it passes. His bath, which worked well, was frozen, since which it has not worked, giving pin-holes or spots.

In freezing it probably lost its iodizing; it may be too strong, or the spots to which he refers may come from dust of hyposulphite of soda floating about in the room; this last has given many of the craft a world of trouble.

If they will not fix in the same room in which they sensitize and develop, they will bid goodbye to many of the so-called pin-hole troubles.

Never have any hypo near the dark-room; never let it drain or drop on to the

floor; for on drying it grinds to a fine powder, and soon finds its way over the whole establishment.

As a rule, it is time lost for the photographer to fuss much with a bad working bath; better, far, precipitate it with salt or muriatic acid, and send the chloride to some honest stockdealer or chemist, and make up a new one of fresh silver.

The loss of time and bad work from a poor bath, far exceeds the very trifling loss resulting from the precipitation and sale of the chloride.

Mr. Runkle presented a photographic copy, 30 X 22, of a drawing of the Court House in this city; it could not be exceeded in tone, sharpness, or brilliancy, and proves what can be done in large work by skilful manipulation.

Prof. Rood gave a description of some experiments which he was making, as to the length of time the electric spark lasts, and of which, at a subsequent meeting, he hopes to exhibit some photographs. He has two electrodes from which the discharge takes place. The light is sent through an achromatic lens, and falls on a revolving mirror, from which it is reflected upon a ground glass screen. The mirror revolves about 300 times in a second, and the whole apparatus is so arranged that it will measure the two millionth part of a second. Experiments thus far made had given the duration of the spark, as one thirty-five thousandth part of a second.

Owing to the rapid revolution of the mirror, the spark becomes a streak or line; at its beginning bright white, and finally green in color. When brass was used as the conductor, with platinum, the gray tint was observed; these being the characteristic colors of the metals when burning.

Mr. Mason gave a most interesting description of a recent visit to the Photo-Lithographic establishment of Mr. Osborne, in Brooklyn; he exhibited some fine specimens of that kind of work; among the most noticeable was a copy of the *London Punch* of two-thirds the original size, in which every letter was as perfect as could be; indeed it was so like ordinary press-work, that not one present could have told the difference.

C. W. H.



## CORRESPONDENCE.

MR. EDITOR: In a recent number of your Journal, my attention was arrested by an article from your pen, entitled, "Why you should take a Journal," in which you set forth the advantages of the subscriber over the non-subscriber. Now it has occurred to me, that the reasons why beginners and second-class operators *do not* take a Journal and read photographer's books, are very plain. It is because the books are not as definite and simple as they should be, and are hard to understand. They, poor benighted fellows, try some of the formulæ, and cannot get as good pictures as they did by the old process, and then condemn them as humbugs. Why do they pronounce them humbugs? Because they have had results. Why do they have such results? Because they do not understand the compounding of the preparations. It is very frequently the case when a contributor sends a communication to a journal giving a new formula, that it is imperfect and unfinished. There are examples of this kind in the last numbers of the *Photographer*, that present themselves to my mind while writing. One is a recipe for redeveloping. Pyrogallie acid and nitrate of silver, 40 grs. to the ounce. The author says nothing about the way to make the acid solution, nor what strength, nor what proportions of acid and silver; neither does he direct how to use the preparation. Now for a person that has never used the redeveloper, or seen it mixed and used, how does he know what to do? Is he not in a dilemma?

In reading a photographic work, a short time since, I noticed a new and rather complicated formula, and the author undertook to explain how it should be prepared in something like the following. Take two bottles. Mix such and such things in bottle No. 1, and certain ones in No. 2 (and described in what manner the articles should be put in), and then mix the two together, and then add such an article; and lo! one article never was included. I do not recollect the number of the articles nor their names, or I would give them. Is that as it should be? There is no excuse for such things in a book written by a professor of chemistry in a college, and a first-class photographer. Such things as these cause young beginners

and poor operators to condemn journals and books.

One reason why there are so many poor operators is this: A person desiring to learn the business, goes to some operator to make inquiries about it, and gets the information. He gets the needful articles, goes under instructions, and in one or two weeks gets a fair picture occasionally, and is told he need not stay any longer and waste his time. He starts out, and is almost daily in trouble. Customers come and cannot get good pictures, and they take poor ones or leave. Then he goes to his book, can't find anything to suit his case, and feels discouraged. When all his preparations are in good working order, he gets fair pictures, but, if one preparation is deficient, he knows not where to look for it, nor what to do if he finds it. Do you wonder young beginners have such poor luck, when they have been so humbugged in instruction? Another reason why there are so many poor operators: they are not particular in their working; they are too slovenly and careless.

I once knew an old operator to catch some rain-water off of an old rusty tin roof, and mix up his bath with that. I suppose he thought it was all right, as it was rain-water. He was a poor operator, and very rarely got up good pictures.

I think if you could induce your contributors to be more particular and definite in giving their formulæ, and explain simply and plainly the manner of mixing and working them, it would be an excellent thing. The little things in working are too much overlooked. What a large proportion of operators need in a journal, is how to mix the preparations, and how to keep them in working order.

Yours, fraternally, F.

Some of the remarks of our correspondent are very well put, and will, we trust, have a good effect upon the 'guilty ones, ourselves included. We know that the trouble exists, and probably we are at fault in not correcting it more, but always had the impression that those who were gifted by nature sufficiently to secure an image on a plate, were in a like manner gifted and practised enough to mix an ordinary solution. We

cannot make good photographers if they will not strive themselves to improve. The trouble is just here. Those whom our correspondent describes as being graduates in one or two weeks, are the very hardest to teach. They are led to believe, or form the impression themselves, that if they can make a picture good or bad, that they need know nothing more. They fail to practise and study after they graduate.(?) We know of men now not very far from our office-door, who are making no better work than they were four years ago. Why? They do not try. They have settled down to a certain standard "good enough for what they get for it," and they will *never* improve. All new formulæ are "humbugs," because they have not the mental capacity or ambition to try to comprehend them. The very best plan for such, is this: Hit upon some process that will work without trouble to you, and *hold fast to it*. Read your journal and read your books, and gather from them all the hints you can for the improvement of your method, and *strive* to make better and better work by it. H. T. W. S. S. T. K. S. He that will *strive* shall then know something.—ED.

DEAR SIR: I will write you, in a brief letter, of a few matters which have fallen under my observation during a few weeks of travel in the Empire State. And first let me say, for the comfort of those of the fraternity who have for some time been complaining of "dull times," that the complaint is not peculiar to them or to their locality. The same is everywhere heard. This is no doubt to be accounted for in part by the fact that there is a general dullness in all departments of business; and all photographers may hope to see a little more money when it begins to circulate more freely in other channels.

In New York City as in many other places, I find that the great law of nature prevails, *i. e.*, that the big fish swallow up the small ones. Many of the smaller, and what were properly called the "cheap galleries," which we formerly used to see at every turn of the street, have disappeared; and I hope, for the reputation of the business, many

more will follow. I am not disposed to find fault with this law, so far as it affects this business; for it is a source of just pride which one can be allowed to indulge who has been engaged in the business for many years, to see the photographic art elevated and take high rank, as it should, among the fine arts. This grand desideratum can be all the more speedily accomplished by having those who have no taste, no culture, and no fitness for the business in any respect, drop from the ranks, and letting those who have the proper qualifications and the means go forward, perfect their lights, apparatus, and chemical formulæ, fit up in taste and elegance, and adorn their galleries with the best specimens of the art. Thus the public taste is elevated and educated to a higher standard, and at the same time it affords pleasure and excites admiration.

While in New York City, I visited the studio of Baron Egloffstein, a Prussian gentleman of fine culture, Nos. 133 and 135 West Twenty-fifth Street, whom I had met in Washington several times during last winter, at the residence of the Prussian Minister. He has been engaged for several years in perfecting a process known only to himself, by which he transfers the negative picture from the glass to a steel plate, and positives are made from this to any extent. This is all done in a wonderful short time by the agency of light and acids, and with such accuracy as to preserve the finer details of the picture. I saw many fine impressions on porcelain in good detail, and at the same time showing the fine lines of the engraver. He has applied the art heretofore mostly to the illustrations of books on natural history and anatomy, and to maps. He intends in future to apply it more to portraits; and may not long hence open a gallery on Broadway for this purpose.

I have also had a pleasant little trip up the Hudson, calling upon the photographers at Albany, Troy, Syracuse, and other places. Syracuse, one hundred and fifty miles from Troy, on the New York Central Railroad, is a fine flourishing and growing city. It boasts of some ten or more photograph galleries, two or three of which may be called first class. Mr. Lazier's gallery is one of

the best. He is a gentleman of fine taste, and is affable and pleasant to customers,—which is the true secret of success in this business. The *Philadelphia Photographer* is found in his gallery, as also in many of the other first-class galleries I have visited. It is everywhere highly appreciated, and pronounced far in advance of any similar

journal in this country. Some other places I have visited, and other matters of interest I might speak of, but I fear my picture is too long exposed already, and overdone, and I will put in the slide and close with many good wishes for your success.

Yours, truly,  
W. S.

## Salad for the Photographer.

BUSINESS has been dull of late, and the weather, for a month, has been photographically bad. A correspondent writes, "If it continues to rain forty days and forty nights I will soon be up to see you in a boat. It has been dancing tunes on my skylight for the last two weeks, from fairy-like music to regular Virginia breakdowns—mostly of the latter kind. Has any one a formula for printing in cloudy weather?"

A MELANCHOLY ASSERTION.—The editor of a little journal ("Photographic Notes"), published in Jersey, England, gives utterance to the following sweeping remarks: "There has been a good deal of talk about applying photography to the purpose of book illustration; but such an application of it would never be popular so long as photographs continue to be as ugly and inartistic as they are now. The truth must positively be told, and no one must be offended at it. That is why photography is going down in public estimation. The novelty has worn off; the hopes that were entertained of it have been falsified; photographs are not pretty, and people are getting tired of them; art has carried the day against the camera. Photographers are in distress." Fine sentiments for a photographic editor. Are they not, Salad?

May we not add to these sage remarks that some of the photographic journals will have to die entirely, and no longer go on in "dead and alive" style, or fill their pages with love stories and romances, and that charitable institutions must be erected for "photographers in distress?"

MR. H. BENEDICT, Seville, Ohio, says: "I observed, in your March number, a leaf

of Salad from the garden of Brother Marshall, telling his plan for silvering paper. Allow me to give you one from mine, of a younger and more tender growth, and I think the better, for less seasoning: After floating the paper a sufficient time upon the silver, instead of lifting by *two* corners and drawing it over a smooth glass-rod, so that the surplus of silver runs back into the dish, raise it by *one* corner slowly, *quite slowly*, and hang it up. When, if you choose, you can spread your linen cambric handkerchief underneath with impunity. The same principle holds good in raising the plate from the silver bath."

Have any of our readers ever tried lifting and dipping the plate corner-ways, or one corner down? By using a deeper bath, and dippers with feet long enough to protect the plate, it might be done. As Mr. Benedict asserts, it will be found an advantage to *remove* the plate by one corner.

M. PAUL JEUFFRAIN sent a communication upon the use of iodide of aluminium in collodion for preventing the film coming off. He stated that numerous trials had convinced him of the real value of this compound, the use of which obviates the necessity of varnishing the edges of dry collodion plates, &c., to prevent the films washing off. The collodion may be of any kind containing a rather smaller proportion of iodides than usual, so that, when the iodide of aluminium is added, it may not be too strongly iodized. To prepare this salt for the purpose, dissolve 127 grains of iodine in one ounce of strong alcohol, and add clippings of thin aluminium foil till the solution becomes colorless; a slight amount of heat may be requisite to accomplish this



perfectly. A solution of iodide of aluminum is now made, containing nearly nine grains of the salt in a drachm, and about six or eight drops should be added to each ounce of collodion to give it the adhesive properties named.—*Fr. Cor. Br. Jour.*

#### UTILIZING OLD GUTTA-PERCHA BATHS.

—With a sharp knife cut neatly away the front or convex side of the bath, which will leave it like a tray with one end removed. Take now a sheet of glass one-eighth of an inch thick, and cut it of a size to fit the back; then cut two long strips for sides, and one for the bottom, about a quarter of an inch thick. These having been fitted, cut a piece similar to the bottom to act as a front or cover. Fasten all together by means of shellac, using for this any flat iron instrument, such as a poker or a soldering iron made red hot. The joints should receive a plentiful supply of the shellac, which will become hard at once.

Let us now suppose that the gutta-percha bath with the glass one inside of it is laid face up on the table. Finish it by taking the front piece of gutta-percha, which was cut out, and, it having been softened by heat, laying it down with gentle pressure over the glass front, cementing it to the sides and bottom as formerly. After trimming and smoothing with a warm iron the bath is finished.

I have had a bath of this kind in use since the idea occurred to me, and it answers well, proving, as yet, as good as solid cast-glass baths. C. H. FREE.—*News.*

**CLEAN FINGERS.**—The *London Journal* publishes the following recipe for cleaning the hands, by Mr. M. Whiting, Jr.: "Put a quarter of a pound of glauher salts, quarter of a pound of chloride of lime, and four ounces of water, into a small wide-mouthed bottle. When required for use, pour some of the thick sediment into a saucer, and rub it well over the stained parts with pumice-stone or a nail-brush, and it will clean the fingers quite equal to cyanide, but without any danger. This will do to use over again until exhausted, and should be kept corked up." The use of lemon-juice will remove any unpleasant smell from the borax and chloride of lime.

A CORRESPONDENT of the *News*, writing upon the subject of "streaks in the negative," says, that when a plate is plunged rapidly down in the silver solution, that the dipper and plate will carry a small quantity of air with them; that air rising to the surface will cause streaks, and more especially if the bath be upright. To remedy this, he had the edge of the dipper made thinner than the plates in use, tilted the bath, and very slowly immersed the plates. He also remarks that if a plate is put a quarter of an inch into the solution, and allowed to remain a second before covering, no matter how rapidly they are then dipped, there will be no streaks.

We have often found streaks to occur early in the day, when a bath has been much used, and the first few plates dipped were invariably streaked. Finding the cause to be a sort of wavy, gaseous film, that arose on the surface of the bath in form similar to that of coal-gas on water, we got rid of the difficulty by slowly dipping a cleaned glass-plate in the solution every morning, before beginning work. This plate would collect the troublesome film as it descended, and entirely remove that cause of streaks.

MR. H. W. BOOZER, Ionia, Michigan, thinks "Cincinnati's" ideas are about right, and his remedy for dull times, the best one. He wants a convention called to fix a scale of prices, &c. Shall it be done, and prices advanced?

OUR CLASS.—"B. S. J." says, "You have certainly taken a step in the right direction in forming 'A Class of Troubled Photographers.' I work substantially after your direction, and know your formulæ will work. If all who fail chemically will become your pupils, success will certainly be their reward. You say it is difficult to publish anything *new*. That is not what we want. We want to get all to *understand the old*. I profess to work successfully and only write to encourage you, for I know much good can be done in that way."

"B. S. J." is right. We live principally on *encouragement*, and to it the great success of our journal is owing. We get an abundance of it.—Ed.

## Editor's Table.

SIGNOR OTTAVIO BARATTI, MILAN, ITALY.—We have received your two parcels of stereographs and cartes-de-visite. Many thanks. The former are very interesting. The cameo-cartes are new to us. We shall soon send you a few American cabinet portraits, which we hope will please you.

CAN any of our readers give us any information with regard to the prisms formerly used in daguerreotyping landscapes, for inverting the image? Any party having one or more for sale, will please address us.

ERRATA.—In our last issue in Mr. Browne's paper on the Zentmayer lens, on page 81, line eleven from the top, please run the pen through the words "of an inch," as they there occur.

In our report of the meeting of the Photographic Society, page 88, lines seventeen and eighteen from the bottom, read: *prepared one year before exposure*, instead of "developed one year after exposure."

LOTTERIES.—We are sorry to see a growing disposition among photographers who desire to dispose of surplus apparatus and pictures, to resort to the petty "gift enterprise" or lottery scheme to obtain their ends. We have recently had our name attached to the circulars of one of this kind without our sanction, and also advertisements of it offered for our columns. The latter we refused, and desire to say that we cannot sanction or help any one to obtain money from our subscribers in that way.

"W. U. M." wants to know if the cut on our cover (the tripod and pencils) is our "coat of arms?" Not exactly. It is merely a symbolical device, intended to represent the triumph of photography over the works of the pen and the pencil. As "the pen is mightier than the sword," so is the camera mightier than either pen or pencil.

MR. F. B. CLENCH, Lockport, N. Y., has sent us some very fair pictures of the new size, and suggests the formation of a *Cabinet Portrait Exchange*, expressing his willingness to exchange such pictures with others so disposed. No doubt such an exchange would result in good.

MR. ROWELL'S CARBON PROCESS.—We are in the midst of some experiments with Mr. Rowell's

carbon process. We imagine that many of our readers are employed likewise. We sincerely hope so, for in this direction lies much of our future prosperity. Mr. Rowell is now prepared to furnish his tissue, his "Hydrocarbon Varnish," and his "Transferring Solution," to all who desire to see what they can do in carbon printing. He also furnishes plain and simple printed directions for working his process. As we are all interested, we should all try it. We hope those who do, will send us a record of their experiments, and let us compare notes. In our next issue we shall have more to say upon this very important subject.

While all the manipulations are new to us, we do not find them difficult. With ordinary care, after a few failures we can secure very good results. Mr. Rowell is now making some pictures for our Journal, which will create a great deal of admiration we feel sure.

"THE DIAMOND DICKENS."—Messrs. Ticknor & Fields, Boston, have begun the issue of a new edition of the works of Charles Dickens. The first volume is before us, and contains the charming "Pickwick Papers." The second, also at hand, contains "Our Mutual Friend," and the third will be "David Copperfield." The first volume contains a new and excellent steel portrait of the author, which is a fine work of art; sixteen full page illustrations, each one of which is decidedly original; 464 pages in beautiful type, and is printed on tinted paper, and neatly bound. It is a model of cheapness and beautiful and careful typography. The idea of issuing the works of this favorite author in this form is a capital one.

MR. OSCAR G. MASON, 26 Pine Street, N. Y., has favored us with a very excellent stereograph of the moon, from Mr. Rutherford's negative. It is a great study.

MR. WM. H. RHOADS, 1814 Frankford Avenue, Philadelphia, has sent us a new cabinet picture called "The Fruits of a Tin Wedding." Teapots, spice-boxes, sauce-pans, spittoons, cullenders, candlesticks, funnels, kettles, pans, dishes, and other presents, smaller and *grater*, are piled up in pyramidal style, and beautifully photographed—enough to keep a man in tin for a long time. The picture is nicely vignettied, and will be an acceptable souvenir to those who have enjoyed the delectable pleasures of a tin wedding.

MESSRS. G. & A. MOSES, Quincy, Illinois, have sent us a number of cartes, showing very nice careful manipulation and very tasteful posing. In the latter point, the pictures are particularly pleasing, and we are glad to notice a general improvement in this direction. Among the prints sent, are some with very dark, ugly spots and markings upon the paper. These markings puzzled the most skilful photographers, and are yet a mystery to us. They were only eradicated by *printing the paper in a damp condition and in the shade*. Sunlight and dryness would bring back the trouble. We would be glad if some one would explain this mystery, and request Mr. Moses to send us a piece of his paper, non-sensitized, and a piece of the same sheet printed with the defects.

STATIONERY.—Those of our subscribers who are wanting anything in the line of stationery, will find a fresh and elegant assortment with Messrs. Eckstein, Nagle & Co., 630 Arch Street, Philadelphia. These gentlemen give their personal attention to all orders, and a number of years' experience enables them to please.

MR. LEA'S excellent papers on *Photographic Perspective*, which appeared in our last volume, have been reprinted in London, Berlin, Paris, and Vienna, and the accompanying diagrams were in each case faithfully reproduced. We are glad to see such papers so fully and widely appreciated.

A NEW subscriber in Missonri sends \$2.50, and says he will "risk" six months' subscription any way. We trust his *loss* will not be great.

MR. T. C. MATTHEWSON, Tremont, Ill., says the species of streaks, resembling flashes of lightning, spoken of by Mr. Lea, in his articles on fogging, may be entirely eradicated by putting a drop or two of the bath solution into the collodion you are using. He has found it to be a perfect remedy.

TO THE TROUBLED.—In the first article in our February issue, on page 34, run your pen through the last line of the first column and the first line and part of the second of the second column, and read instead, viz., "It usually forms a precipitate, which is undissolved bromide of potassium." In our haste we overlooked the error in reading proof.

BACK NUMBERS WANTED.—Parties having numbers 12 and 13 of this Journal to spare, will confer a great favor by sending them to us, and will in return receive 75 cents per copy for them. We desire them specially to make up sets for friends. Who has them?

In quoting our remarks upon Mr. Notman's cabinet portrait issued with our January number last, Mr. Thomas Sutton, editor of *Photographic Notes*, sees best to dub them as "nonsense," and attributes them to Mr. M. Carey Lea. Some of our other exchanges have also quoted Mr. Lea as editor of this Journal. We desire to exonerate Mr. Lea in this instance, and to state that all contributions by him are invariably accompanied by his name or initial. Mr. Lea is a valuable contributor only, has no editorial care of this Journal whatever, and is only responsible for what assertions are made under his own name. We are single and alone in the management of this Journal and responsible for all matter having no signature. We make this explanation to relieve Mr. Lea from false imputations, and to set the matter right.

EDWARD L. WILSON,  
Editor *Philadelphia Photographer*.

OUR New York friends persist in calling the new cabinet portraits "Imperial Cards." It is a very badly chosen name and will, we hope, be abandoned. We want to forget all about cards. Do not want to make them any more. *Cabinet Portrait* is a great deal more dignified, and besides is the name adopted abroad and at home, except in New York. "Imperial Cards!" The "Imperial" leads the mind to hope for something grand and elegant until it is followed by "Cards," when down come the hopes like the spread tail of a peacock when he looks down at his black feet.

GRISWOLD'S CARBON DIRECT PRINTS.—Mr. V. M. Griswold, not content with the beautiful results produced by his Ferro-photographic process, has, for some time, been working in carbon. He called upon us recently with a number of prints by his new process. Unlike those made by other carbon printing processes, these are carbon *direct* prints, and not transfers. In addition they are *on iron*. Surely, this should make them the paragon of permanence. The specimens shown us were from both portrait and landscape negatives. In the former the gradations of light and shade are most soft, beautiful, and perfect. In the latter the beautiful half-tones, the elegant detail and effect of light and shade, make exceedingly fine pictures. So sensitive is Mr. Griswold's preparation that it secures every bit in the print that is in the negative, and it prints very quickly. We have seen no paper prints by his process yet, neither do we know much about it, but hope to be able to enlighten our readers further next month.

SEVERAL notices of Stereographs, &c., received by the Editor, are in type, but are crowded out. We trust our friends will bear with us until our next.







Boston Public Library.

F. S. KEELER, PHOTOGRAPHER,

PHILADELPHIA.

T H E

# Philadelphia Photographer.

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## CARBON PRINTING.

WE doubt not that a number of our readers have been experimenting in carbon printing, since the announcement was made in our March issue that the tissue could be had in this country. From the time that it was first made known, we have felt a great interest in the process, for we believe the true permanency of photographs, and consequently *the life of photography itself*, lies in that direction. From time to time, Mr. Swan has been sending us most exquisite prints by his process, but we have never been able to obtain any of his tissue in order to experiment ourselves. Each new arrival of prints, and each fresh paper upon the subject that appeared in our British contemporaries, awakened our desire to dabble with our own hands in this new method of producing photographs.

When Mr. Frank Rowell entered our office and placed a parcel of prints in our hands, made upon tissue of his own manufacture, accompanied by some for our own use, we experienced a feeling of peculiar joy, surprise, and satisfaction commingled, that would be difficult to describe. Brigham Young feels no such joy when new wives are "sealed" to him.

A few satisfactory experiments convinced us of the simplicity and ease with which the pictures could be made, but we could not

feel at rest until we had made a pilgrimage to Boston, and had seen Mr. Rowell at work.

Yielding to this desire, we made the visit, and are returned, we trust, "a wiser and a better man." There we saw Mr. Rowell go through his mysterious(?) manipulations from beginning to end; and with our own hands, after seeing the thing done, made a dozen or two prints without a failure. From one stage of the process to the other we watched for the *difficult* part, but we were disappointed. We met no trouble. Everything came as promised, and nothing interfered. Our doubts were removed; our faith strengthened; our eyes opened; and our hands made carbon prints with perfect ease. The story that the process is "commercially impractical," "difficult," "intricate," and "uncertain," is a false alarm and a delusion. We can make carbon prints from beginning to end, without fear of failure, the tissue being furnished. Such being the case, of course the process *must* be simple.

As *all* of our readers will be working in this direction ere long, it may not be uninteresting to them to know more fully how carbon printing is proceeded with. Mr. G. Wharton Simpson, editor of *The Photographic News*, contributed a valuable paper upon the subject to *Photographic Mosaics* for 1867, and we reprinted it in this journal, but, as the method of working Mr. Rowell's tissue is somewhat different from



the one given by Mr. Simpson for working Mr. Swan's tissue, we shall endeavor to make it plain below. Mr. Rowell supplies the tissue, "Hydrocarbon varnish," and the "Transferring solution." The other materials are obtained of your stockdealer.

*Carbon tissue* is the material upon which the prints are made. A mixture, in proper proportions, of gelatine, water, sugar, and India-ink, or other pigments, is applied warm to paper, and adhesion thereto secured by pressure. This tissue can be more readily made uniform than can albumen paper, and will be found so in working it. It may be rendered sensitive when manufactured, but it is found most expedient to sensitize it as it is required for use. It should be kept where the atmosphere is neither damp or too dry, between plates of glass or metal, and under some pressure, or weight.

*To Prepare and Sensitive the Tissue.*—Lay the sheet to be sensitized on any hard, smooth substance, and rub or wipe the printing surface gently with a clean soft linen cloth or piece of cotton-flannel. Avoid touching the tissue with the hands or fingers. After rubbing, take it by two corners, immerse it in the sensitizing solution, and, drawing it through the same, dexterously turn it over and allow it to remain, face down, three or four minutes. The sensitizing solution is made as follows:

Bichromate of Potash, . . .	1 ounce.
Cold Water, . . . . .	30 "

This solution will keep in stock any length of time, and it is wise to make more at a time than is actually needed. When made in quantity, it should be well corked to prevent the evaporation of the water, which would increase the strength of the solution. Not less than a quart should be used for sensitizing one dozen pieces for the new cabinet portraits. The solution should never be used for a second batch of tissue, and the temperature should be about 65 degrees. After removing the tissue, hang it up by *two* corners to dry. Clothes-clips are best to hang it with, and should be clean; these may be screwed on strips and fastened in rows in the dark-room. By repeated trial it was found that thus prepared, the tissue will keep a week, after being sensitized, and give

equally vigorous prints with that freshly sensitized. This we saw tried with results as stated. At first, it was thought not to keep over twenty-four hours, when sensitized. It is well to keep the prepared tissue pressed in a book or under weight, and, of course, in the dark.

*Lighting the Tissue.*—When about to print, place the tissue in the printing-frame as usual with other papers. It appears a little singular to place black instead of white paper in the frame and expose it to light.

Now, the lighting is the most difficult part of the process. A negative with good intensity is the best. The time of exposure must be judged of by the skilful printer, and the printing of ordinary or intense negatives must invariably be done in diffused light or in the shade. But *THIN* negatives, by being lit' in clear *SUNLIGHT*, will give, on this tissue, very strong, brilliant prints, quite equal to those from intense negatives. The actual time necessary is about one-fifth that required for making silver prints from the same negative. Those who desire it, may use an actinometer for testing the strength of light, which may be rudely made and used for the purpose, in the following manner: Across the middle of the opening of an ordinary vignetting-block, on the concave surface, fasten a slender piece of wire of the thickness of a common pin. Place a piece of sensitized albumen paper under the wire, and keep it in place by a piece of card-board under it, fastened at one end by a gum-ring, and at the other by a paper hinge; expose to the light in which you are about to print, under yellow glass or three or four thicknesses of Saxe paper. When the paper is darkened so as to show white under the wire, you may look at your time and thus get at the strength of your light.

A good, careful printer, by observing the density of the negative, the strength of light, &c., may print with but little trouble. We find a little experience in this direction to result in much better prints. Prints a trifle under-exposed or over-exposed, can be readily managed, as will be explained below.

After lighting, fasten the tissue by the corners on a glass plate, with the printing

surface uppermost, by means of clothes-clips. Then, with a soft camel's-hair brush, varnish the printing surface with an even coating of the "hydrocarbon varnish," and lay away to dry. In varnishing, care must be taken not to allow any of the varnish to get between the glass and the tissue, or on the under side of the tissue, as that generally ruins the picture. Take a piece of Saxe paper, which has been previously *float*ed till saturated on the "hydrocarbon varnish," and very thoroughly dried, and place the varnished side of it on the varnished surface of the tissue, and gently press them together with the hand.

Now remove the tissue, with the varnished Saxe paper on it, from the glass plate, and trim the edges of the two papers all around with a pair of shears. It is always best to trim the sheets, even when there is no apparent necessity for it, for the pressing of the two varnished surfaces together, by the blades of the shears in cutting, has a very beneficial effect in the subsequent operations.

Now lay the two adhering sheets on a piece of smooth card-board, with the Saxe paper uppermost, cover them with a piece of felt cloth, the Saxe paper being next to the felt-cloth; then place another piece of card-board on the felt-cloth, and pass the whole through a press. The pressure must not be too heavy nor too light, but about equal to the weight of a roll weighing about eight hundred pounds. This will be found quite sufficient for  $\frac{1}{4}$  prints, and all smaller, and the same proportion of pressure for larger sizes.

After coming from the rolls, the print must be handled carefully, and placed, with the Saxe paper uppermost, in a water-bath, heated from 95° to 100° Fahrenheit. When placed in the water-bath, the print will sometimes be disposed to curl up into a scroll. Let it take its own course; do not interfere with its action; but if it rolls up, it is necessary to turn it gently over frequently, to keep all its parts wet alike. In from three to five minutes, the tissue paper may be separated from the Saxe paper. The proper time for separating them may be ascertained by pressing the corners between the thumb and finger, with a delicate movement of the thumb in one direction, and the finger in

the opposite. When it is found that the corners will slip or slide apart, commence to pull, very delicately, on the two papers, keeping them all the time below the surface of the water. As soon as they are separated, throw out the paper which first held the tissue. No *silver* can be extracted from it. Continue to wash the prints in this water, heated from 95° to 100° F., until all the unaltered gelatine and bichromate are dissolved, and until the print is fully out. If any of the prints do not come fully out, they must be transferred to the second vessel of water at a higher temperature.

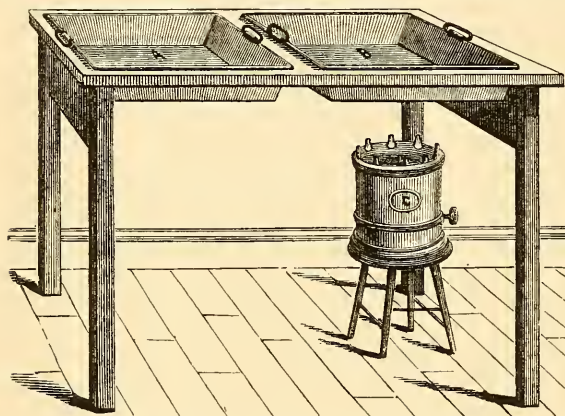
If the picture has been a little over-lighted, and appears too full, the heat of the water in the second vessel may be increased to 110, 115, or even to 140° F., according to circumstances; and in this way, by continuing to wash, and raising the temperature, a print which has been considerably over-lighted, may be brought to the condition desired. If, however, the print has been *very much* over-lighted, no amount of washing, and no degree of temperature of the water can save it.

If the print has been slightly *under-lighted*, it may be fully developed and washed in the water heated only to 95° or 100° F.; but, if very much under-lighted, no treatment can save it. It is best to wash the weakest prints first.

As soon as the print is thoroughly developed, it must be placed in a vessel of clean cold water, which must be very frequently changed, or placed under a tap, and allowed to remain there for two or three hours or more—all night if more convenient—and then removed and hung up by clips to dry.

As water cannot be conveniently heated by most photographers, the arrangement constructed by Mr. Rowell, and shown in the cut below, will be found very useful. A wooden framework is made of the desired height, similar to a table, with an open top and a cross-piece in the centre. A and B are metal pans four to six inches deep, placed in the open top, suspended there by their rims, and heated by the stove or gas-burner C. One of these is used for tepid and the other for warm or hot water. Heat may be applied under the pans by means of gas or by using one of the con-

venient little coal-oil stoves so useful to every photographer, and for sale by all stockdealers. A shelf may be erected of proper height on which to set the stove, or a stool used, as in the cut. No doubt, the dealers will all supply themselves with these pans. They may be made of tin, copper, or galvanized iron. The latter would be very good indeed, and no objection to its use. Tin would hardly stand the heat any length of time. It is convenient to have a thermometer in each pan.



It has been found most convenient to use the right-hand pan for the tepid water, and such prints as will not wash fully out in the right-hand pan, are passed over into the left one to be washed, or developed, in hotter water.

When dry, the picture is to be nicely and evenly coated with a solution made of—

Cox's Sparkling Gelatine, . . .	1 ounce.
Cold Water, . . . . .	8 "
Glycerine (pure), . . . . .	80 drops.
White Sugar, . . . . .	½ ounce.

This should be made in quantities as wanted; fresh every time, in order to insure a good, sweet, strong glue. It ferments very quickly, which reduces its strength.

Warm slowly, just enough to melt the gelatine, and use warm. When a number are to be done, it is handy to tack them by the four corners to a board, and let them be coated and dried on it.

As soon as the coating of glue is dry, the print is to be laid, face down, on a piece of

wet or moist paper, on which it is to remain *permanently*, and passed between rollers, with the felt-cloth and card-board, as before described; but this time with a *heavy* pressure.

When dry, take a very fine sponge,—or a wad of cloth, made like a copper-plate engraver's "rubber,"—and *moisten* it, not saturate it, with some of the liquid from the bottle labelled "Transferring Solution," which, for the purpose, may be poured out in a saucer or plate. Then lay the print, with the Saxe paper side uppermost, on a plate of glass, and dexterously rub over the whole upper surface of said paper with the moistened sponge. Use barely enough of the "transferring solution" to moisten, but not to really *wet*, the Saxe paper. The proper quantity will have been applied, when the paper becomes so transparent that you can see the picture through it pretty distinctly. This done, the Saxe paper may be easily removed from the surface of the picture by the fingers. Start one corner and pull slowly apart. If, in removing the Saxe paper, it should be inclined to adhere in some small places, apply a little more of the "transferring solution," as before; but there will be no such adhering spots, if the first application of the "transferring solution" has been thoroughly done. If, on removing the Saxe paper, there should be discovered any small particles of varnish remaining on the surface of the print, a slight rub with the sponge, dampened with the "transferring solution," will quickly remove them. Indeed, it is best *always* to rub the sponge, dampened with the "transferring solution," over the surface of the picture, as soon as the Saxe paper is removed, even when there are no perceptible adhering spots of varnish on the print. A large print may be transferred with the same ease as a small one.

If the "transferring solution" is well applied, the Saxe paper will, from the peculiar action of the solution, in combination



with the peculiar nature of the varnish, frequently roll off itself from the picture.

After the Saxe paper is removed and the print becomes dry, it must be immersed for about five minutes in a solution of alum and water, made by dissolving one ounce of alum in thirty-two ounces of water. Immersing the print in alum is called *tanning* it, as the action of the alum makes leather of the picture, and of the gelatine with which it was coated. After tanning, wash or rinse, under the tap, for four or five minutes. This completes the operation, and the picture may now be mounted with starch, or any other adhesive material, in the usual mode of mounting silver prints.

The sooner the tissue paper can be separated from the Saxe paper in the tepid water-bath, the better it will be for the picture; and, for this reason, it is best not to take into the tepid water-bath more than a dozen pictures at one time, for fear they might soak there *too long*, before they could be separated, and so, possibly, give trouble.

The "hydrocarbon varnish" and the "transferring solution" are very volatile and inflammable, and should be kept tightly corked, to prevent waste from evaporation; they must never be used near a naked flame or fire.

The varnish-brush, to be kept soft and straight, should be suspended from a hook on the under side of the lid in a tin brush-cup, which should always contain enough of the "transferring solution" to keep the brush saturated.

Twenty ounces of the varnish, if used with ordinary care and economy, is more than sufficient for all the pictures that can be made from twelve sheets of the tissue.

Sometimes blisters will appear on the print while in the water-bath. They are caused by small holes in the paper, or air which remained between the two varnished surfaces, or by want of contact in the rolling. If from the first cause, they will dry down, disappear, and do no harm. If from the second or third cause, they may be pricked with a fine, sharp needle, from the back of the paper, and so rendered harmless. There is, however, once in a great while, a very refractory blister, which will spoil a print, or which can only be removed by scraping,

and retouching with India-ink, after the print is mounted. With great care in placing the two varnished surfaces together, before rolling, and care in rolling with a good, steady, rather slow pressure, the blisters may be almost entirely avoided.

Pictures technically called "*vignettes*," of the size of life, or *cartes-de-visite*, may be made on the tissue, as readily as on silvered paper.

Be very *certain* that both of the varnished surfaces are perfectly dry before putting them together.

The utmost care and attention must be used not to allow the tissue to be struck by light, after it is sensitized, either before placing it under the negative or in any of the subsequent manipulations, previous to developing in the hot water. Remember that the sensitized tissue is *much* more sensitive to the action of light than any silvered paper, and that any want of care, in this particular, will certainly be punished by the entire failure of the whole operation. We mention this because several persons who have used the tissue have lost many pictures by neglecting this often-repeated caution.

We fear we have made our paper so long that the operations will appear more difficult than they really are, but such is not the case.

The experimentalist will be surprised when he begins, astonished as he progresses, and delighted at his sure success in the end. The process is easy and cleanly throughout. Except the development of a negative-image, nothing can be conceived more beautiful than the development of a carbon print in warm water. From a dark gelatinous surface, springs up a picture of most exquisite beauty and softness. It seems like *legerdemain*—aye, like *creation* itself. From this stage to the end of the process, it is full of interest and pleasure. One has no fear of bad tones, measles, hypo-stains, blisters, and what not of the pestiferous annoyances that attend silver printing. If lighted properly, every picture is a success. Where the apparent difficulty lies, is in the fact that the manipulations are *different* from other photographic operations. There the difficulty ends. After the prints are removed from the washing it is possible, with care,

to do all the rest with the hands in fine kid gloves without scarcely soiling them. Silver printing is a beautiful process, with all its perplexities, but carbon printing is more beautiful, without the perplexities, and *the results are permanent.* By carefully following these directions, the reader may secure beautiful results in carbon.

The process has many claims to the preference; it is needless to repeat them here, as they have so recently appeared in our pages in the paper alluded to above. It is easy, simple, practical, and economical. The results, in many respects, are unequalled by any other process. Some do not like the color of the tissue now made by Mr. Rowell. We would add, that he is now manufacturing some with a warmer colored pigment, which will give more pleasing results. We hope all live photographers will experiment, for surely, in this direction lies the future of photography, and its fading reputation is to be reclaimed by this process.

Since writing the above, we have made the necessary arrangements, and worked the carbon process with great pleasure and satisfaction in our own laboratory. The more we see of it the more we are impressed with its practicability. The query "Is it practical?" need not be repeated. It most emphatically is practical. We shall be glad to hear from and counsel any one who does not find it so, and also to hear from those who succeed with it. The directions above are so plain and so exhaustive that you will seldom fail if you follow them with care.

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## THE GLYCERINE PROCESS.

BY M. CAREY LEA.

MORE than a year ago, when Mr. Harrison brought this process forward, it seemed to attract no attention, and scarcely even provoked trial. Now, however, it seems almost suddenly to have taken hold, and many favorable opinions have been expressed. A few trials which I have made, have impressed me very favorably, and I am quite ready to believe Mr. Harrison right in his opinion that this method will, to a large extent, supersede the regular dry processes,

by enabling the photographer to prepare his plates at home or at his stopping-place in the morning, and develop them in the evening.

The conditions of success in this process are not exactly the same as in the regular wet process. This method seems to be quite as easy and of quite as regular success; but when it goes wrong, it does so from reasons that differ somewhat from those that control the wet. In fact, it is a process to be learned (though easily) by itself. The photographer may succeed at the very first trial, and again may fail without at first seeing exactly why. It is therefore very desirable that the exact conditions of success and the exact causes of failure should be ascertained. This can best be done by all those who try it giving the results of their experience, so far as they seem likely to be useful to others. I hope this will be largely done, and propose to set the example by communicating what I have been able to find out respecting this interesting process.

First, the bath. Mr. Harrison recommended a bath acidulated with acetic acid. Mr. Dawson gave, as his results, that he succeeded equally well with a bath acidulated with nitric.

As nitric acid has come into general use in the regular wet process, and a good deal superseded acetic, and as I have used nitric acid habitually myself, my first experiments were made with it, though with a belief, from certain investigations made in connection with other examinations, that acetic ought probably to answer best. I found that my plates, if kept for more than a very short time, presented small round semi-transparent marks, varying from the size of a small pin's head. These are not to be confounded with crystallization-marks, which come after the power of the preservative is spent. Crystallization-marks first make their appearance at the edges of the plates where the drying advances faster, and are easily distinguished; moreover, every photographer must be familiar with them, as they make their appearance in any sensitized plate that is allowed to dry with the bath solution over it. The marks I speak of are hazy-looking, and I knew them at once to be produced by a peculiar decom-

posing action that a nitrate bath, especially when acidulated with nitric acid, sets up, with time, in the film. Previous experiments in other directions had made me familiar with these spots, and informed me as to their origin. I therefore substituted an acetic acid bath, and the spots disappeared at once.

An ordinary nitric bath is easily converted into an acetic bath without need of re-making. For a 20 or 25 ounce bath it is sufficient to add 6 or 7 grains of acetate of soda, and 20 to 30 minims of glacial acetic acid. The quantity cannot be stated more exactly, as something will depend upon how much the bath was acidulated in the first place.

I may here take occasion to remark, that in all cases where plates are to be preserved, acetic acid would seem to be the right acid to use, and, as it works quite as well as nitric for ordinary use, those who occasionally use the glycerine process would do well to substitute it once for all.

As respects the collodion, I have used one containing a good deal of bromide, and am inclined to think it best, without as yet offering it very positively. Three grains of a bromide and five of an iodide is what I have employed. It should not be too fresh.

As respects the preservative, different opinions have been expressed. Mr. Harrison directs to use—

Glycerine,*	.	.	.	2 ounces.
Honey,	.	.	.	2 "
Bath solution,	.	.	.	2 "
Water,	.	.	.	2 "

This, I think, is as good as any that can be made. It has been proposed to omit the honey and use glycerine only. With me, this has not succeeded so well.

This mixture is to be shaken up with  $\frac{1}{4}$  ounce of kaolin and placed for a few hours in diffused light. This time seems scarcely

sufficient. For some time the mixture deposits gradually a black powder; with age, it loses this tendency, and seems every way to improve by keeping. This was strikingly shown by the following circumstance:

I tried this method more than a year ago, but did not succeed in one or two hasty experiments, and left it over. My preservative solution stood about for over a year, when I took the subject up again, tried the preservative, and found it still in excellent order, in fact, better than at first, for it seemed to have lost the tendency to deposit.

I therefore recommenced to prepare an extra quantity of this preservative, and set what is not required for use to stand and season against need, when it will be found all the better for the keeping.

Mr. Dawson has made an interesting remark, that as the preservative solution grows constantly richer in silver and poorer in glycerine and honey, it ceases to work well. That after it comes to contain 25 grains of silver to the ounce, it stains and injures the plate. That which I have used was, I suppose, too large in quantity to be soon affected. The remedy is, however, obvious—to add more glycerine and honey and expose again to light. Very likely it might be found advantageous to throw in a little common salt to remove the excess of silver; this, of course, would have to be done with judgment, to avoid adding too much.

I have found it better and less trouble to put the preservative into a horizontal bath, and plunge the plate in it. One is thus sure of applying the preservative with perfect uniformity, and is saved the trouble of working it over the plate. This method is, however, open to the objection that some preservative is wasted by adhesion to the back of the plate. This is disagreeably sticking, and cannot easily be wiped clean. Each method has its advantages and its objections.

As respects the development, so far as my experiments go, I have preferred the iron developer. Mr. Harrison gives, as the results of a long experience, that the pyrogalllic and citric acid development works better, and for the reason that, though he found a longer exposure necessary, he had more latitude of exposure and fewer plates spoiled by errors of exposure. The chief trouble in

\* The glycerine must be perfectly pure. Price's is the best, and should be got in the original bottles, which are very peculiar in appearance. The glycerine, if genuine Price's, is thicker than honey. What I used was supplied to me by Charles Ellis, Seventh and Market Streets, and is just as imported.



this process seems to be the occasional tendency to solarization in the skies, so that sometimes by the time the details in the shadows are brought out, the high lights are too nearly up to the density of the skies, which last have been over-exposed in the effort to get an impression in the deep shadows. The lens makes, of course, some difference in this, the trouble being more apt to occur when a small stop is used. This result is only occasional. Still it is very desirable that it should be carefully studied and the conditions ascertained, and best means of avoidance. This is, in fact, the most serious difficulty in the case, and a point in which the glycerine plate acts quite differently from the ordinary wet plate. When the sky has been over-exposed, it comes out deep red and perfectly transparent like red glass.

If the glycerine process has this difficulty, it has a corresponding advantage over the common process over and above the keeping qualities which are its object. The plates are less apt to streak and stain. A bath that is old and charged with impurities, and approaching the end of its usefulness, works better with glycerine than in the regular manner. In fact, as the bath solution is washed off by the preservative, this could hardly fail to be the case.

One other point of manipulation remains to be spoken of. The plates, by keeping, tend to get somewhat dry at the edges. This portion then becomes very repellent to the developer; it is difficult to get it over this portion, and it will not stay there as the development proceeds. This leads to irregular development at the edges, which thus become spoiled even whilst the centre and all but the edge may be all that can be desired. So strong is this tendency to repel the solution, that a plate will sometimes do it even after washing for two or three minutes under the tap.

The remedy is to develop this plate in a horizontal bath, and in this way it comes out perfect up to the edge. A correspondent of the *British Journal*, mentions that he had been troubled with marbled stains, and had avoided them by always flooding his plates with a 15-grain solution of nitrate of silver, before developing. I have never seen anything of that sort, and the bath development

has seemed to me all that was needed to get clean and satisfactory plates.

If the preservative be applied as a bath, and be not very completely removed, which is too troublesome to do, and then the developer be applied also as a bath, there will be apt to be a deposit of silver on the back of the plate, which of course has no importance except that the operator might at first imagine that his plate was undergoing a very remarkable fogging.

As to the keeping qualities of the plates, I have not found them do well after twelve hours, and, generally speaking, it is better to finish the developing as soon as convenient. Crystallization tends to set in at the edges, and the plate becomes disorganized throughout. A number of experiments made with a view to find a mode of prolonging this time have turned out, so far, unfavorably.

As to exposure, it has appeared to me that from two and a half to three and a half times the exposure for an ordinary wet plate, is right. Say, in average light, three times; in strong light, a little less than three times; and in very bad light, a little more. With a triple exposure, however, the operator cannot go far wrong, and will generally secure good results. Tannin dry plates are generally spoken of as requiring *eight* times the exposure of ordinary wet ones, so that here a very great advantage is secured. It seems every way probable that this preservative gives the nearest approach to wet plates in general effect of any yet devised.

It was not my intention to have written anything on this subject, until I had experimented more extensively in it, which I fully expect to do. But its importance seems to render it desirable that it should be generally tried, and that all the information that can be collected as to conditions of success and causes of failure, should be put into print for the general benefit. This, I hope, will be done.

Yet a remark remains to be made. These negatives lose more in the hyposulphite bath than those made in the regular way, and the development must accordingly be carried a little further. It is evidently by reason of

the extreme fulness of the deposit that this result occurs.

When it is found that the fixed picture is too weak, it cannot be redeveloped as easily as a common wet plate. This is the more reason for getting a right amount of density before fixing. At that stage of the process, the negative redevelops very easily and nicely, and, if care be not taken, the silver may easily be piled up too much.

### COLLODION POSITIVES.

EDITOR OF PHILADELPHIA PHOTOGRAPHER.

DEAR SIR: Having heard that some of your subscribers complain of the lack of information derived from the perusal of your valuable journal, in relation to ambrotypes, ferrotypes, &c., I propose with your permission, to give a few simple but practical instructions, by which such pictures may be easily produced. A great deal of unnecessary trouble and vexation is experienced by this class of operators, as well as by others aiming at the *higher* branches of photography, on account of the spirit of carelessness and want of thought, which characterize the most of their manipulations. There are, of course, a great many exceptions to the above, and to them my remarks do not refer, but to the many who are continually getting into what they call a "*stick*" they are kindly addressed, with a view to relieve them of their trouble; if what I say seems harsh, I am sorry, but the old saying is, that "he that spares the rod spoils the child," and the same rule can be applied to a great many operators, who, by saving themselves a little trouble in keeping things clean, and mixing their chemicals properly, spoil their pictures and then blame their chemicals, and find fault with their Journal, because they cannot find an article to suit every particular trouble. Now, Mr. Editor, I do not pretend to claim anything new in my forthcoming remarks; in fact, it is almost impossible to say anything *new* in these enlightened days of photography, but what follows may serve to impress upon the minds of a great many, the necessity of *careful* and *systematic* manipulation, without which it is impossible to succeed.

A young friend of mine, an amateur, came to me the other day, to show me some ambrotypes that were covered with pin-holes, and he said he had tried *everything* to get rid of them, but could not do it. I asked him what he *had done* to get rid of them? He said he had "boiled down his bath; made it the proper strength again; put it in the sunlight until it was perfectly clear, but it was no use, the pin-holes would come." So you see he had not done *everything*, but on the contrary, had left *undone* the only thing that would have cured his bath, viz., to have diluted it with water about one-third (which would have precipitated the excess of iodo-nitrate of silver, which was the cause of his trouble), and then have filtered it clear before boiling it down. And what made it the less excusable for him is, that he subscribes for your Journal, which in many places gives directions for the treatment of the bath for pin-holes. Now it is perfectly natural for him (or any one else), not to know the remedy for a trouble, but was it not careless, to say the least, for him not to look in the only place where he would be likely to find the remedy, namely, in the *Photographer*, or some other photographic work? There are others again who, to save a little trouble and trifling expense, frequently mix their chemicals by guess. I know of several who do this. Such do not deserve to succeed, but if they read this they may see the error of their ways and repent. To the last named class of operators I will show why everything used in photography, should be weighed or measured, to insure success.

*First.* If your nitrate bath is too strong the film on your ambrotype or ferrotype plates, will be thin, blue, and semi-transparent; if too weak, it will be creamy with irregular lines running across the plate in the direction of the dip, caused by the collodion being too strongly iodized for the strength of the bath.

*Second.* If your developer is too strong, your picture will flash up, and be unmanageable, and most likely have curved streaks in the direction of the flow of the developer, caused by the unequal reduction of the silver upon the plate; if it is too weak, it will develop slow, like a picture that is

under-exposed. If you have too much acid in the developer, it retards the development; if too little, it fogs the picture. It is not generally necessary to weigh the cyanide for fixing the pictures, but still it should not be very strong, as it attacks the middle tones very quickly, leaving a black and white picture. And the above troubles may happen when the chemicals themselves are in the best condition for picture-making, because they will not take the trouble to be accurate in mixing them.

I trust the above remarks will be sufficient to prove the *necessity* of keeping all the solutions at their proper strength, and when trouble comes it will give a better chance to find the cause, and to apply the remedy. The following formulæ experience has taught me to be perfectly reliable. I would advise all to make their own collodion. It will save them a good deal of annoyance, besides giving them some experience, which is absolutely necessary before they can ever hope to become practical photographers. I shall make the quantities small to suit those doing a small business. They can be multiplied as required.

#### COLLODION FOR AMBROTYPES OR FERROTYPES.

Absolute alcohol, . . .	8 ounces (fluid.)
Concentrated ether, . . .	8 " "
Iodide of ammonium, . . .	40 grains.
Iodide of cadmium, . . .	40 "
Bromide of ammonium, . . .	30 "
Gun cotton, . . .	50 "

Take a pint bottle and put in the alcohol; then add the iodides and bromide, and shake until dissolved; then add the cotton, and finally the ether, and again shake until the cotton is completely dissolved. This makes a collodion that has good keeping qualities; it should be set aside for a few days in a cool dark place, and then filtered for use. Operators in the country should always send to some reliable stockdealers in the large cities for their chemicals, as those sold by the druggists in the country are seldom pure.

#### SILVER BATH.

Nitrate of silver, C. P., . . .	2 ounces.
Pure rain, or distilled water, . . .	24 " (fluid.)
Nitric acid, C. P., . . .	4 or 5 drops.
Iodide of potassium, . . .	5 grains.

Dissolve the silver in twenty-three ounces of the water, and the iodide in the remaining ounce, and add the two together; shake once in a while for two hours, then filter through paper, after which add the acid, and the bath is ready for use. The letters "C. P." mean Chemically Pure. Everything should be C. P. When distilled or rain water is not to be had conveniently, the following plan will generally give you water of sufficient purity for a bath.

Take a gallon bottle (have the glass as white as possible), fill it with water and dissolve in it 120 grains of nitrate of silver, and set it in the sunlight (if you use spring or pump water, add a couple of drops of nitric acid, C. P., which will neutralize any of the alkaline carbonates that are generally found in spring water). The sun will soon turn the solution a dark brown, which is the precipitation of the organic matter contained in the water. Leave it in the sunlight until the dark deposit has all settled at the bottom, and the solution becomes clear; you can then filter it and set it aside for use. This of course can only be used for silver solutions. For developing I use a simple negative developer with the addition of a little alcohol, as follows:

#### DEVELOPER FOR AMBROTYPES.

Protosulphate of iron, . . .	1 ounce.
Water, . . . . .	14 " (fluid.)
Acetic acid, . . . . .	2 " "
Alcohol, . . . . .	1 " "

But those who prefer a developer giving a bright metallic lustre to the film, can use the following:

Protosulphate of iron, . . .	4 drachms.
Water, . . . . .	8 oz. (fluid.)
Alcohol, . . . . .	2 " "
Acetic acid, . . . . .	6 drachms.
Nitrate of potash, . . . .	100 grains.
Nitric acid, C. P., . . . .	5 drops.

Mix either of the above intimately, and filter before use. Now having given you formulæ, which, if properly worked, will give excellent results, I will give you my plan for keeping them in order; it is very simple, but if carried out, will save a great deal of trouble and vexation, and save a great many pictures that would otherwise



prove failures. In the first place get a wide-mouth bottle that will hold two quarts, and a glass funnel that will hold one quart. Place two thicknesses of filtering paper in the funnel (this will last a long time if you are careful not to break the paper); this is to be used for filtering your bath every night, and must be used for no other purpose, so keep it on the shelf near your bath. Now proceed as follows: every night after you have done making pictures, take a damp sponge and carefully wipe out your plate-holders, and set them away. Then pour your silver bath into the funnel, and let it filter into the bottle, and remain there until morning, when it will be perfectly clear and ready for use. Rinse out your bath-holder with clean water and set it upside down to drain upon a clean piece of paper; in the morning it will be clean and dry. Pour your collodion into the stock bottle, and clean out your vials. This labor will not occupy more than fifteen minutes at most. Then when you come in the morning, take a damp cloth and wipe the dust from your shelves and floor (never sweep the floor if you can help it); now put your bath-holder in position and pour in the silver solution, and cover it up till you are ready to use it; next filter your collodion into the clean vials through a tuft of cotton-wool. If it is too thick, thin it with a little ether before filtering. Finally make and filter your developer, and you are ready for business. Before beginning work in the morning, see that your camera and lenses are clean. The following directions for keeping the nitrate bath in order should be observed.

The first thing likely to trouble the operator is the accumulation of ether and alcohol in the bath; the ether does not remain in the bath, but rises to the surface and evaporates, but the alcohol combines with the water composing the silver solution and remains there; this must be taken out every few days. This state of the bath is detected by means of the plate, which refuses to coat evenly, the solution running down it in greasy lines, and the developer, unless containing considerable alcohol, will not flow smoothly. When this is the case, pour your bath into a porcelain evaporating

dish, and boil it down about one half, which will expel all the alcohol; then add pure water sufficient to fill your bath-holder again, and test it with the hydrometer; if it is below forty grains to the ounce, add silver until it is the proper strength; put in a piece of litmus paper, and if it is sufficiently acid filter it, and it is ready for use. Pinholes are obviated by dilution with water and filtration before boiling, as explained above.

In conclusion a few precautions may not be out of place, and may benefit a few, although most operators know enough to avoid such difficulties. Never mix developing or other solutions near your silver bath; never spill any solutions made of crystallizable salts upon the dark-room floor (such as cyanide of potassium, hyposulphate of soda, sulphate of iron, and nitrate of silver), without carefully wiping them up; if you do, they will crystallize, and in walking about you tread them into an impalpable powder which fills the air, and settles upon your plates, and when developed they dissolve, causing spots and streaks; the above will apply to photographers as well as to ambrotypists and ferrotypists. Always have your thoughts about you when you are mixing chemicals so as to avoid mistakes, as a little more or less in solutions often seriously affect the results, especially in mixing collodion. Never weigh out your chemicals upon the metal of your scales, but upon paper, using a clean piece every time. After filtering the excess of iodide out of your bath, throw the paper filter among the wastes, for if you pass a stronger solution through it again, the iodide will be again dissolved in the solution. Finally, as cleanliness is the first law of health, it certainly is one of the first in picture-making, for without clean manipulation, you cannot expect to get clean results. And now, Mr. Editor, if I have taken too large an amount of your space to give a small amount of information, I hope you will forgive me, as I am seldom troubled with the mania for writing.

Yours, fraternally,

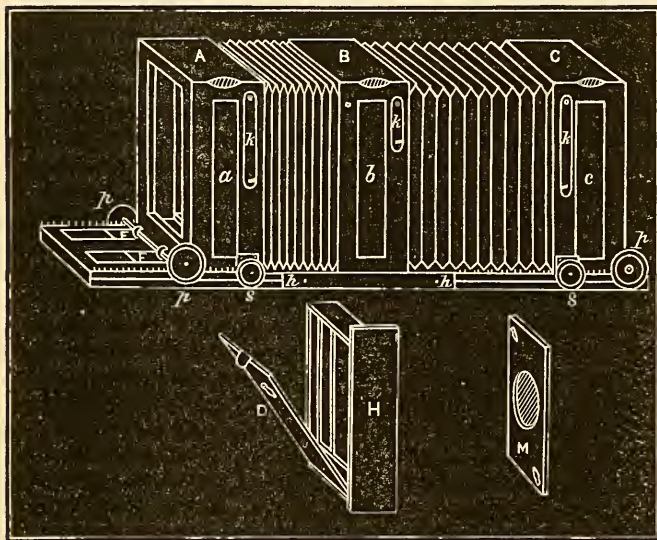
G. H. F.

We have so frequently been asked to give a paper upon the ferrotype process, that the

above contribution is very acceptable. We know that many of our readers are forced to make this class of pictures against their will on account of the popular demand for them. As this is so, we cannot of course refuse to instruct them how to proceed. We hope, however, for a better future for photography than such pictures would predicate.

The writer of the above paper stands as high as the highest in photography, and is therefore, thoroughly competent to instruct in any branch. Those who carefully follow his directions will find failure an unusual thing. We hope we shall often be favored by him with papers so thoroughly useful, practical, and instructive.

### DESCRIPTION OF A UNIVERSAL CAMERA.\*



A, B, and C are three square boxes, *all exactly alike*. *a*, *b*, and *c* are three slits or spaces into which the ground glass, the plate-holder, and two carriers (to be hereafter described) exactly fit. The principle of the camera is, that all these are *convertible* and

*reversible*; that is to say, either of them will fit into any slit, and may be turned so as to face either right or left.

The bottom of the camera is in three pieces, which are hinged at *h h*, so that the end pieces may turn up when closed, and when so turned up are held by small brass catches, *k, k*, which also serve to keep any of the slides from coming out by passing over them. When open, the bottom is made rigid in the usual way by the slides *F, F*. On the two end pieces racks are attached on both sides, and for the entire length.

The centre box *B* is screwed firmly to the bottom, whilst the other two, *A* and *C*, are made to slide out by the ordinary bellows attachments. To each of these latter boxes a double pinion, *p p*, is fixed, but so as to be easily put in and out of gear by pressing the milled heads right or left, whilst a small set screw, *s*, serves to fix it firmly at any part of the entire length by pressing on the solid

brass of the rack. It will at once be seen that by this arrangement either end of the camera may be made front or back, both ends being exactly alike.

I have only now to describe the two carriers *H*. These are frames made to carry either mats of wood, *M* (of which there may be any number, for lenses of different sizes and focal lengths), or a frame to hold negatives from which positives on glass are to be

made. Of these carriers there are two—one with a door, *D*, to be let down for exposure and shut up when required, and the other without; but either of these will hold any of the mats. There is a brass nut under the centre box to attach the camera to the ordinary tripod stand. Suppose now—

I. I desire to use this camera for portraits. I may do it in two ways, according to circumstances. First: I may put the mat *M*

\* Exhibited by the President, at a meeting of the Manchester Photographic Society, February 14, 1867.

for my portrait lens into the carrier H (the one without the door), and insert this in the slit *c*; then place the ground glass (and plate-holder, of course), in the centre slit *b*, whilst I put the other carrier with another mat in it (that will hold a focussing glass), into the slit *a*; so I want no black cloth, &c. Or, second: I may put the carrier H, with its mat for the lens, in the centre slit *b*; the other carrier, *with the door*, in the slit *c* (pulled out to its extreme length), with the ground glass at *a*; and then I have an excellent shade over the lens for glaring light, and can expose and shut up by the door.

II. If I want to enlarge I put the lens at *c*, and I have the entire length of the camera by putting the ground glass at *a*, or less at *b*. For copying, this is excellent.

III. If I want to take microscopic objects I simply fix the camera near the oxy-hydrogen microscope, and, without even moving it, I can use any power by placing the ground glass at *a*, *b*, or *c*, using either of the mats by way of a stop.

IV. If I wish to make transparencies, I put the mat for my four and a half inch Grubb's lens in the carrier and insert this at *b*; then I place the negative in its little frame, and put this, instead of a mat, into the carrier H, *with the door to it*, and insert this at *c*, with, of course, the ground glass at *a*. The door will now regulate the exposure, and the transparency may be made larger or smaller, according as either end is expanded or contracted. In the meantime we can focus *at any distance* and *at either end* by the rack and pinion. We put the pinion out of gear, draw out the end somewhere near to where we want it for size, &c., then put it into gear again; focus carefully by the rack and pinion, and fix by the set screw *s*.

V. If it be desired to make both negative and positive microscopic photographs at night, as many of us are compelled to do, we have only to first make the negative by the microscope, and then unship the nozzle from the lantern and place the negative just where it was made, close to the condenser, and we may take a positive of any size by using *b* or *c* for the ground-glass. Or any stereoscopic slide may be placed, like an

ordinary slide, in the lantern, and the lens at *a* or *b*, according to size required.

I really believe that for any description of *home work*, by night or day, this camera will be found simple, cheap, and "universal."

I have given no dimensions, as it may be made of any size. Mine is a small one, the plate-holder taking  $6 \times 6$  inches, so that a  $5 \times 4$  plate may be used, either *vertically* or *horizontally*. I wanted it for microscopic or *carte* work. The boxes are eight inches square, and the bottom twenty-five inches long. If required to enlarge transparencies more, it may be easily effected by a mat with a nozzle to screw into it, say three or four inches long, into which the lens may screw, so as to be further from the centre. Or the centre-box may be made to slide to one end of the centre base and fixatory point.

ST. VINCENT BEECHY.

## NEW YORK CORRESPONDENCE.

PHOTOGRAPHY moves; photography has thawed out. The milder, warmer, more cheerful sun of April has overcome the cold, dull, anti-photographic days of winter, and, as the sun brightens and the days lengthen, the Knight of Argento-ferri-hypo buckles on his armor, renews his specimens at the street door, smiles on all who call, and declares that *he* is going to "fight it out on that line if it takes all summer."

If it is true that photography is thawed out, it is also true that much human life is thawed out, for the streets are full, the rail-cars are full, everything and every place but the drawing-room and library are full; all are out for a bask in old Sol's long-obscured rays.

Here we see slowly moving along the busy highway, some rich old uncle, with lots of money, more gout than he wants, and his fair share of affectionate nieces and nephews—not one of whom would take his money if he were to offer it—are so sorry that he has the gout, and are flatteringly anxious to have his picture of the new cabinet size.

This old gentleman is but one of hundreds who are out and about once again, feeling kindly to all, as they themselves im-



prove; to such, does the anxious photographer longingly look for aid and comfort; poor soul, he needs it, for the past winter has not alone tried his patience, but has sent his purse into a hasty decline.

If the professional photographer is in better spirits, the amateur is also. Indeed this last named class are quite irrepressible—they are wild—they long for the quiet little dell, the rich valley, the gently murmuring brook walled in by nature's own living arch, through which the bright actinic ray filters with a mellowness and warmth, which, once appreciated, is ever after enjoyed. Such are a few of the effects of some half dozen days of sunshine on *us*. Their effect upon all would not be in the writer's power to describe, even were this the time and place. Before calling the reader's attention to the more substantial and less fanciful portions of this letter, I cannot help but express the wish, often wished, that some able pen could be induced to set forth the great advantages which would result from a proper instruction in our higher schools in photography, as a means of begetting a love for art and a love for nature.

Most people think they enjoy beautiful scenery. So they do, in their way, but it is a poor way; the best proof that they do not, being found in the locomotive style practised in making the "tour," ten days being considered enough to "do up" the Hudson River, the Catskills, Trenton Falls, Niagara, the Thousand Islands, the White Mountains, and Lake George; beginning by going up the Hudson in a night boat, and ending the trip in a sleeping-car on the railway. Did ever a landscape photographer travel of choice in this way? Never! He could not, he would not; he loiters, he strolls, he sees ten thousand beauties the tourist cannot see, for the taste of the latter lacks culture. This should be remedied. Photography is the easiest method by which to instruct, for every man can make, by reasonable study and application, a good photograph, yet but few can ever learn to sketch or paint. Cannot you devise some means of informing the "barbarians" of these facts?

Having pretty well "boxed the compass" with nothing, let us to work, and tell of things more practical and more valuable.

Well, to begin, that most honorable, if not time-honored body of ours, known as the Photographical Society, met on the 8th of April, in goodly numbers and spirits, Professor Johnson presiding. Mr. Mason exhibited a new style of printing frame, such as is used by the Photo-Lithographic Company, by which a pressure of 1100 pounds is said to be obtained on a 14 × 20 plate, and which he thought of value for any thick stubborn paper, which in ordinary frames would not lie in close enough contact.

It was, in all respects, like the common frame, except in that it had five back-clips instead of two, between which and the movable back, which lays over the paper to be printed, there are two pieces of heavy rubber hose, such as is used for water (very thick), which run lengthwise of the frame, these taking the place of springs. He explained the method adopted by the Photo-Lithographic Company to draw solutions through a syphon; which was to have a piece of lead tube, of about three-eighth inch bore, at the short-leg end of which was a piece of sponge, somewhat larger than the opening, to which a cord was attached and passed through the whole length of the syphon, extending far enough beyond the other end or long leg to take firmly hold of it. To operate this, you first placed the short leg in the solution to be run off, then taking hold of the string at the long end, draw the sponge through the syphon, producing a vacuum, the solution following and running out at the long-leg end as soon as the sponge is withdrawn.

Professor Seeley said that a simple way to draw over solutions, would be to insert one end of a flexible rubber-tube in the liquor to be removed, next place the finger firmly on the tube at the point where it passes over the edge of the vessel, then, between the forefinger and thumb of the other hand, draw the long leg of the tube, expelling the air, thus producing a vacuum into which the fluid rushes as soon as the finger first placed is removed from its pressure on the pipe. Having for years practised this plan, I assure the reader that it is reliable and easily managed after very little practice.

Professor Johnson spoke of the difficulty often experienced in filling large syphons

by the usual method of suction, which could be overcome, to a great extent, by making the short leg of one-half greater diameter than the other. By this simple change, there would not be any difficulty in charging the tube, as the column of liquid coming up the short leg would be sufficient to fill the other at once.

In answer to some remarks on filtering, Professor Seeley described the method which he employed. Inasmuch as the rapidity of filtering can be increased by increasing the pressure, and as that can be increased by adding to the height of the column of fluid, he proposed the following: Attach to the funnel a glass tube of any desired length, the lower end of which turn up by heating and bending; over this tie a piece of filtering paper, placed between two pieces of muslin. This tube should, for collodion, &c., be placed (the bent part), within a bottle, which can easily be done by using one with a wide mouth and passing the tube through a cork.

The advantages to be derived from the bent tube will be considerable, as the heavy sediment will settle in the bend of the tube, and the upward filtration does not choke or clog the filter as does the downward method.

Mr. Newton exhibited quite a number of prints, mostly made in your city by Mr. F. S. Keeler, on alabaster paper; something quite new; free from any gloss whatever, soft, harmonious, and decidedly superb in their effect; they received, as they merited, most hearty praise.

No explanation was given in regard to them, Mr. Newton stating that he was only authorized to please the eye, and not to satisfy the questionings. The same gentleman also exhibited a series of wax-paper negatives, which, for detail, brilliancy, and general excellence, were far ahead of any of his previous productions, and promised, at the next meeting, to give full details of the process.

Specimens of carbon printing, by Mr. Frank Rowell, of Boston, were also shown, which were very fine, but possessed that peculiar olive tone, which, to most persons, is somewhat unpleasant. If the tone can be made warmer, and the process made commercially practical, it must, ere long, consign silver printing to the tomb.

Professor Johnson made a long and very interesting statement in reference to the early history of the Daguerreotype, by which he aimed to prove that the first sun-portrait from life was made by Wolcott and himself, and not, as claimed, by Professor John W. Draper. He quoted various authorities of the day to prove his claim. He stated that Professor Draper, in an address before the American Institute, in the fall of 1865, had claimed that he produced the first Daguerreotype, in December, 1839. Prof. Johnson read a letter of Wolcott's published in March, 1840, in *Mapes' American Repository*, page 194, vol. 1, in which he states that he had made a portrait in October, 1839.

In March, 1840, Johnson stated that Wolcott and himself opened rooms for the Daguerreotype business, to perfect which, they had been constantly experimenting since early in the previous October. The long and interesting statement made by him, I am forced to curtail, as this letter is now trespassing upon your space.

Mr. Hull introduced some radical and quite important changes in the By-Laws, calculated to essentially change the whole character of the Society, but which are not of special interest to the general reader.

Owing to the press of various matters of interest, a most interesting letter to the writer from Mr. H. T. Anthony, of the well-known firm of E. & H. T. Anthony & Co., of this city, was forced over to the next meeting. Considering it of very great importance to the craft, and knowing the value of the formula for a developer, which was by this communication given to the public, and as the letter was in no degree the property of the Society, but private and personal in its character, I do not hesitate to lay it before your readers with my most hearty and unconditional approval, trusting that every photographer will at once test it. The letter bears date, April 1, 1867. In it Mr. Anthony says: "I take a saturated solution of iron and add to it, drop by drop, a weak solution of tannin in alcohol; this soon assumes a blue color; I then add acetic acid until that color disappears, and afterwards a few drops (say 5 to 10 per ounce), of a two-grain solution of gelatine. Then

add as much more acetic acid and water as may be proper. I have ascertained by an experiment, this afternoon, that some white loaf-sugar can be substituted for the gelatine, producing very brilliant negatives without the necessity of intensifying by re-development or otherwise."

Mr. Anthony gave me this formula, or one substantially like it, in January, 1866. I have used it ever since, producing, for brilliancy and vigor, results never before attainable in my hands. Several others have fully tested it, and all agree in the one opinion, that it is *the* developer of all developers. Its keeping qualities are all that can be desired; it is in every respect most excellent.

C. W. H.

### How M. Claudet Took a Large Portrait on a Dull Day.

WE were fortunate enough to be in the establishment of M. Claudet during one of those dull days on which no photographer either expects or desires a sitter. An intimation was given that a young lady was waiting to have a portrait taken, which, as she had to depart immediately for the Continent, *must* be taken at that particular moment. The size required was large,  $13\frac{1}{2} \times 11\frac{1}{2}$ ; the day, as we have said, was dull; no other time was available, and therefore it was imperative that the portrait be then taken. Hamlet's reply to his Queen mother: "I shall in all my best obey you, madam,"—must be the ready rejoinder of the photographer under the circumstances above detailed; and in this case the artist lost no time in fulfilling the behest of the fair sitter. Having been requested by M. Claudet to witness the mode of proceeding he intended adopting on this occasion, we visited his studio, and, for the benefit of our readers, now give some brief details of the *modus operandi*.

The camera was one of large size, the lens being of corresponding dimensions. The aperture of the lens was five and a half inches, the focus being twenty-two inches. To stop down a lens of such long focus would, on a day like that in question, be simply to render it quite impossible to take

a portrait. The method adopted by M. Claudet was one by which all the difficulties were surmounted in a simple and successful manner.

When the part of the sitter most distant from the camera was placed in sharp focus, a mark was made upon a slip of paper attached to the sliding body of the camera, which was moved by rackwork. The nearest part of the sitter—the knees—was focussed and marked in a similar manner, and, on examination, we found that the distance between these extremes was about three-quarters of an inch. It was evident that the differences in the extreme planes of the face could bear only a very small proportion of this distance, and it was equally evident that if the lens were moved backwards and forwards with special relation to the planes of the face only, the outstanding portions of the lady's dress would be totally sacrificed, or *vice versa*. This difficulty was overcome in an ingenious manner. At a distance of about a couple of feet in front of the camera was suspended a piece of black velvet, which, when raised to an appropriate height, sufficed to entirely cut off the lower part of the sitter, or that part which would be so much out of focus when the best definition of the upper part had been secured. Assuming, therefore, that from the waist of the lady upwards would be at such an equable distance as to have those portions of the figure correctly and equally defined by moving the lens over a space carefully marked on the slip of paper, M. Claudet divided his exposure into two parts—that of the upper and that of the lower divisions of the figure. After the upper portion had received its *quantum* of exposure, which, owing to the large aperture employed, was very short, the velvet screen was raised on the stand, and the portion exposed was thus shut off—the lower part of the figure being then allowed to be transmitted by the lens, the focus of the camera having also been previously altered to suit that particular part of the figure, which being, as we have said, much nearer to the lens, caused a difference in the plane of its focal representation.

It may be supposed that the edge of the black screen would have shown a line or marking in the negative, but a slight con-



sideration of the fact that it was suspended at a very short distance from the camera, renders it apparent that the edge would be so very much out of focus on the plate as to render it quite impossible that anything approaching to a line or marking could be produced. Under no circumstances could it have been more than a "vignette" edge of the softest possible nature.

For some time we have not seen conducted a photographic operation of a more interesting nature than this. The width of the aperture allowed of a short exposure, which would have been quite unattainable were a stop inserted sufficient to render the lower portions of the figure equally distinct with the face. The success which attended the picture thus taken in our presence, may be inferred from the fact that M. Claudet has determined upon including it among those he intends exhibiting at the forthcoming International Exhibition.—*Br. Jour. Phot.*

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### TO A CLASS OF TROUBLED PHOTOGRAPHERS—IV.

LADIES AND GENTLEMEN: You left the class last month feeling assured, no doubt, that you could make negatives free from the ordinary faults that you had before met with. If you have succeeded in securing them as free from cloud and fog as the heavens have been during the past few days of early spring, you have done well.

Judging from the prints you have brought with you, I imagine you have been so busy trying to secure good negatives, that you neglected the printing, for some of these are far from being *good prints*. You did well to take pains with your negatives. The negative is the keystone of the grand photographic arch. If it is badly made, the beauty of the whole structure is marred. "Just as the twig is bent the tree's inclined." As the negative, so the print will be. It is folly to be careless in making the negative, expecting to make up what is wanting in the printing. An insult to your printer to expect him to make good prints from your carelessly made negatives.

Let us suppose then, that the keystone is

beautifully and properly made, and proceed with the rest of the arch.

Our habits of carefulness must not forsake us when we enter the printing-room. Spare the rake and hoe in the garden, and the weeds will soon outgrow your tender crop. Leave carefulness at the door when you enter your printing-room, and we have only to look upon this table to witness the result. Here we have a quantity of bad prints from good negatives. Good, well-formed keystones, but ill fitting counterparts. Measled, overprinted, underprinted, mealy, over-toned, under-toned, &c., &c. Alas! alas! this will never do. I hardly expected this. I was prepared to give you a few practical lessons in printing and toning, taking it for granted that you knew all about the preparation of the paper, &c. But, as we have here such positive evidence that you do not, I must begin at the beginning, and give you an exhaustive lecture first, upon the primary steps in the printing-room.

Let us begin with a few practical details of the positive printing process. These may be classed under three heads, viz., Salting, Sensitizing, and Toning. As very few of the many photographers in the country are in the habit of albumenizing their own paper, but depend entirely upon the stock-dealers for their supply, it may not be amiss to give you a few ideas upon the nature of salted paper. If we take a piece of albumen paper and silver it, its sensibility to the action of light is regulated up to a certain point by the quantity of salt contained in the albumen. The amount of chloride thus added to the paper, determines the amount of chloride of silver, which, with a proper proportion of free nitrate of silver, is rendered, to a certain degree, more sensitive, in proportion as they contain more chloride. I say to a certain degree, because if you salted your paper too highly, it would precipitate more chloride of silver than the paper is able to bear, the excess forming upon the surface. A paper of this kind is very sensitive to light, and when exposed under a negative, will print very quickly, but it is almost entirely a surface-picture, and, after toning and fixing, you would have but a very faint image upon the paper.

Thus, papers highly salted, and sensitized with a strong solution of nitrate of silver, blacken very rapidly and soon pass into the bronze state; whereas, papers containing but a small portion of chloride print very slowly, and do not reach the bronze state unless the negative is very intense. Again, a paper highly salted and sensitized gives a blacker color to the print, both in printing and toning, than a weakly salted paper, especially if printed in a strong light, whereas, a weakly salted and sensitized paper will give with an intense negative very good detail with a warm tone; but, with a feeble negative, it will give a flat rusty-colored print that is perfectly worthless. And this is not because a small quantity of chloride of silver is not as sensitive as a larger quantity, but because the sizing and other articles contained in the paper have a retarding influence upon its sensitiveness, and therefore the salting and sensitizing has to be increased sufficiently to overcome that influence. For instance, if a paper could be made with a surface hard enough to keep the salted albumen absolutely upon the surface, prints could be made with more vigor and beauty, with one-tenth the amount of chloride and nitrate of silver, than is now required to produce the same result. To prove this, make the following experiments: Take a small piece of plain unsalted paper, and float it upon albumen containing no chloride whatever, and hang it up to dry. Now take a half-size porcelain plate, and coat it with a little of the same albumen, as you would collodion, and let it dry; when dry, float the paper on a twenty-grain solution of nitrate of silver for two minutes. The porcelain can be silvered in the same solution the same length of time; when dry, expose them under negatives, and what is the result? On the first we have a very faint image, totally wanting in vigor, and apparently sunk into the paper. On the porcelain we have a beautiful picture of a cherry-red color, with the details perfect and the shades brilliant, and this without any chloride whatever. The picture on the porcelain is albuminate of silver, reduced by light; the one on the paper is the same, with perhaps some slight combination of the salts of silver with the ingredients of the paper. The porcelain shows no tendency

to bronze, owing to the absence of chloride of silver. In the second experiment add to every ounce of your albumen one grain of chloride of ammonium, and go through the same process as above; the result will be, that the paper-print will be but slightly improved, but the porcelain will have assumed a warmer tone, and the shadows become slightly bronzed. Now increase the amount of chloride to ten grains to the ounce of albumen, and your silver solution to sixty grains strong, and proceed as before; the result will be that the entire character of your prints is changed; the paper print is bold and vigorous, with the shadows slightly bronzed, while on the porcelain the whites are chalky, and the dark parts are so intensely bronzed as to look as if they were covered with a layer of gold, which no amount of toning and fixing would take out. This proves that a good print depends almost as much upon the quality of the paper as upon its preparation for printing. A coarse-grained spongy paper will not give good results for small pictures, no matter what quantity of chloride it contains. But for large work, it is often preferable, as many artists prefer a rough-grained surface to work upon, in preference to a hard and smooth one.

My experience has been, that if I get a good quality of paper with a fine grain, and well sized, I find I get a warmer tone and richer color to my prints by salting lightly, although in that case, it is not quite so sensitive to light as a more highly salted paper. The reason of this is, that in albumen paper sensitized with nitrate of silver, we have a double compound of silver salts in the paper, viz., the chloride and albuminate of silver, both of which are very sensitive to light, the chloride being the most so. The albuminate, as was shown on the porcelains, prints a bright ruby red, while the chloride assumes a violet tint, but which is modified in coming in contact with the organic matter contained in the paper. Our object should be, therefore, to salt the albumen in such a way that sufficient vigor will be given to the print, while the albuminate communicates the warmth of tone. Prints that look rich and brilliant when first printed, will preserve that appearance, through the rest

of the manipulations if a proper amount of care is used.

Those of you who are in the habit of albumenizing your own paper, can, by noting the remarks given you in this lesson, prepare a paper suitable for any class of negatives you are in the habit of making.

Those who depend upon the dealers for your supply, will carefully note the remarks I am about to make, upon the nitrate of silver bath, for positive printing. In the first place we will consider the appearance of the paper when the nitrate bath used is too weak. If you float a sheet of albumenized paper upon a silver solution, twenty to thirty grains to the ounce of water, the quantity of free nitrate contained in the paper will be insufficient, and the following defects will appear: in some cases the paper will print well enough in the beginning, but when it reaches a certain stage, will assume a cold, slaty appearance, the whites darkening rapidly, without the shades assuming a corresponding vigor, and when the printing operation is finished, you have a flat, mealy-looking picture, which is totally wanting in strong high lights, and deep shadows. Such a print is worthless. In most cases it will also show a mottled appearance, caused by the unequal absorption of the silvering solution by the paper. This appearance is mostly found upon that part of the paper that hangs uppermost in drying, but is seen in a less degree at the lower part, where the silver drains down, and becomes concentrated by evaporation. If floated for a long time, say ten or fifteen minutes, the mottled appearance will disappear, but the print, otherwise, will be but little improved. And yet, in some cases, a paper of this kind can be used to advantage; for instance, a very dense negative, that gives chalky whites and deep blacks without half tone upon an ordinary strong solution, will, with a very weak solution and long floating, give better prints than can be obtained in any other way. On the other hand, the best way to get prints from a very weak negative, is to float upon a very strong solution, say from eighty to a hundred grains to the ounce. But for all ordinary negatives, such as are made in this country,

a nitrate solution ranging from forty to sixty grains, will generally be found sufficiently strong, especially when the ammonio-nitrate or fuming process is used. In fact, in some cases I have produced beautiful results upon paper sensitized upon a thirty-grain solution, and fumed, but these cases are rare. My experience has been, that with ordinary negatives, and a plain nitrate of silver solution, it required a solution at least eighty to a hundred grains to the ounce, in order to produce sufficient contrast of light and shade. With the ammonio-nitrate solution, without fuming, it would take from sixty to seventy grains to produce the same effect, and with the fuming process from forty to sixty. As I said before, in some cases, it can be used as low as twenty to thirty grains strong. To the inexperienced there is almost as much to be apprehended from over-silvering as under-silvering. In such a case you are likely to make intense black and white prints from negatives, that with judicious sensitizing, can be made to yield fine soft prints. In warm weather it is hard to keep such paper from decomposition, and the more you fume it the worse it is. The appearance of an over-silvered paper is easily discerned. It often turns yellow very quickly, sometimes before it is dry, particularly in warm weather. If considerably over-silvered it generally has a yellow mottled appearance on the back of the paper, showing that the silver has penetrated completely through; when printed the high lights will have a yellow color; the deep shades will be heavily bronzed, and the yellow mottled appearance at the back will have assumed a reddish tint. The length of time necessary for floating a sheet of paper, depends much upon the strength of the solution, the way the silver solution is prepared, the temperature, and the state of the atmosphere. For a plain silver solution, with fuming, at least three minutes ought to be giving in floating; with ammonio-nitrate of silver, from one to two minutes, and if you fume with the ammonio-nitrate solution, a minute, and frequently half a minute will be found sufficient. If a plain solution is used it ought to be at least sixty grains strong; if ammonio-nitrate is used, from forty to sixty grains will



be found sufficient, according to the quality of your negatives. Paper generally takes about one-third more time to float in winter than in summer, and if the weather is damp and close, one-half the ordinary time of floating will be sufficient. An experienced photographer will always regulate the silvering of his paper by the appearance of his prints. The print should be a warm purple tone, the high lights but slightly tinted from over-exposure, at the same time the print should be slightly bronzed in the deepest shadows. Such prints when properly toned, will give pure whites and deep shades with perfect half tones.

As so much time has been already taken

up by these remarks, I will not further detain you at present.

At our next interview I will give you further instructions upon this same subject, with some practical experiments, and consider the failures in silver printing and the way to prevent them.

The prints that are here I will retain, and for remarks thereon tax your patience until we next meet. Meantime, make duplicates from the same negatives, and bring them when you come again. I am glad to hear you say your troubles are vanishing, and that these interviews are profitable to you. I trust they may so continue.

### RAWSON'S MULTIPLYING REFLECTOR.

FOR MAKING FROM FOUR TO ONE HUNDRED PICTURES AT ONE EXPOSURE WITH ANY CAMERA.



Fig. 1.

Figure 1 represents the subject in the usual light and position, facing the multiplying reflector A, which is in the same direction from him as the camera would commonly be.

The box A is about nine inches square and three inches deep, with doors, B B, to keep out dust and meddlesome fingers; the box is attached to the board C, which is painted black, and upon which the camera is also placed, and receives light from the subject

via the reflectors, at the smallest possible angle, usually from  $20^{\circ}$  to  $30^{\circ}$ ; the box A contains fourteen reflectors, which is the number employed for common work, and which will make fourteen, eight, six, or four pictures at *one exposure* of the required size to cover a one-sixth, one-fourth, or one-half size plate, the different numbers and sizes being governed by the distance between the reflector and the camera. The number fourteen is preferred to sixteen, as it leaves a

better margin on the corners, and is sure to make a dozen good pictures.

Fig. 2.

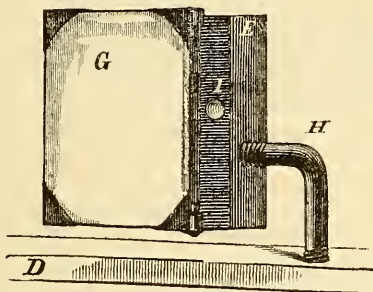


Figure 2 illustrates a full-sized reflector—one of the fourteen contained in A, Fig. 1. D is a piece of hard wood to which a row of reflectors are attached. E is a block of wood upon which the mirror G is mounted. H is a right-angle made of large wire with a screw cut on each end, and, being movable at either end, allows the mirror-block to be turned at any angle. I is a hole through the mirror-block, into which a common scratch-awl may be inserted when it is desired to adjust the mirror.

The reflector-box A is made the height of the common one-half size camera-box, and therefore the centre of it is on a plane with the centre of the camera tube; when it is desired to adjust the reflectors, a head-rest, with the bar turned so as to look like a cross, is set in the position that will be occupied by the subject's head; the operator covers his head with the dark cloth, and sets each reflector with the awl in the hole I, so as to reflect the object to its proper place on the ground-glass; the time required to adjust the whole number will not exceed that used in adjusting the same number of camera tubes, and, when once arranged, will not have to be touched for any number of subjects, unless different sized pictures are required. If four on a one-fourth sized plate are wanted, the camera is moved nearer the reflectors to a point where the *middle four* reflectors will cover a one-fourth plate, and the four reflectors readjusted. The focussing is all done at once, the same as for a single picture.

The number of reflectors that may be used is unlimited, as a box containing one

hundred would work just as successfully, making that number of pictures at one exposure.

The advantages claimed over any multiplying camera are:

First. The superiority of the work; as nearly every gallery at the present day has at least one good camera tube, no trouble will be found in producing gems or small photographs of remarkable sharpness.

Second. As only one exposure is required, the light is equal on every picture.

Third. No extra camera-boxes, plate-holders, cut-offs, or apparatus of any kind to be bought or kept in the way.

Fourth. The expense is so trifling that the extra work of one week will pay for it in any gallery.

Fifth. It is no infringement on any other patent, and every purchaser is guaranteed in making gems, small photographs, or any picture it is capable of producing.

For further information address the inventor,

D. W. S. RAWSON,  
Peru, Illinois.

Or WILSON & HOOD,  
General Agents, Philadelphia.

Mr. Rawson has long been one of our subscribers, and has done much for the good of many of his fellows in producing his very convenient and useful apparatus. In our next we shall take pleasure in distributing a specimen of the work described. We have one of the reflectors in our possession, and find it to be all that is claimed for it. It is singular that no one has thought of it before, and helped the craft to defy certain pretentious patentees, who claim fabulous prices for their dubious inventions! Mr. Rawson has applied for a patent both in this country and in Europe.

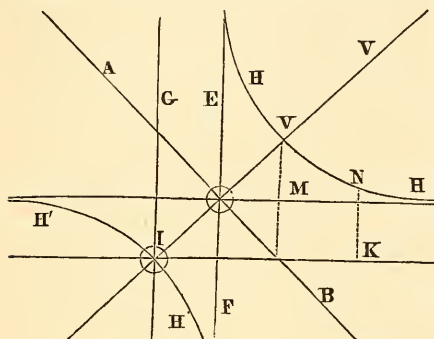
## EQUATION OF CONJUGATE FOCI.\*

BY M. CAREY LEA.

In a letter to me, published in a late number of the *Philadelphia Photographer*, Mr. Mathiot mentions that, having carefully measured a number of conjugate foci of a

\* Read at the April meeting of the Philadelphia Photographic Society.

photographic objective, and having projected them on a large scale, he obtained a hyperbolic curve. It was evident that this must be susceptible of mathematical demonstration, for which I find the following:



The equation of the hyperbola, referred to its asymptotes as axes instead of axes coincident with its principal diameters, takes the form—

$$xy = \frac{1}{2} (A^2 + B^2).$$

Making the hyperbola equilateral, this becomes—

$$xy = \frac{A^2}{2}.$$

Let us now shift the origin of our axes from the centre of the hyperbola to the vertex O' of one of the branches. We get for the values of our new ordinates—

$$x' = x \pm \frac{A}{\sqrt{2}},$$

$$y' = y \pm \frac{A}{\sqrt{2}},$$

Substituting these values in the equation, it becomes—

$$(x' \mp \frac{A}{\sqrt{2}}) (y' \mp \frac{A}{\sqrt{2}}) = \frac{A^2}{2},$$

or—

$$x' y' = \pm \frac{A}{\sqrt{2}} (x' + y'),$$

Of which the positive sign evidently refers to the right-hand and the negative to the left-hand branch of the curve.

Rejecting, therefore, the negative sign, and confining ourselves to the right-hand branch, we have, as its equation—

$$x' y' = \frac{A}{\sqrt{2}} (x' + y') \dots (A).$$

Now this is merely a transformation of the equation which expresses the relations between the principal focus and conjugate foci of any lens or system of lenses.

For if we measure those foci, not from the optical centre of the lens, but from the vertices of admission or emission, their equation takes the form—

$$\frac{1}{f} = \frac{1}{u} + \frac{1}{v},$$

or—

$$uv = f(u + v) \dots (B).$$

We have therefore only to put—

$$u = x', v = y', f = \frac{A}{\sqrt{2}},$$

and the equations (A) and (B) become identical.

It follows, therefore, that all the foci of any given lens are represented by the ordinates of one branch of an equilateral hyperbola referred to axes parallel to its asymptotes originating at the vertex of the other branch, the semi-diameter A being equal to the focal length of the lens multiplied by  $\sqrt{2}$ , then, if any ordinate of the curve represent one of a pair of conjugate foci, the corresponding abscissa will be its conjugate.

As the principal focal length is here represented by the equation—

$$f = \frac{A}{\sqrt{2}}$$

and as the ordinate of the vertex of the right branch of the hyperbola referred to axes originating in the centre of the curve is also—

$$y = \frac{A}{\sqrt{2}}$$

it follows that the principal focal length is represented by the ordinate (or abscissa, both being equal) of the vertex of the curve.

Taking the axes as originating at the vertex of the left-hand branch, the ordinate and abscissa of the other vertex represent the equal conjugates, when the object and its image are equal. And any other abscissa being taken as a focal length, the corresponding ordinate will be the conjugate, and conversely.



## PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting of the Society was held on Wednesday, April 3, 1867.

The meeting was called to order by the Vice-President, Mr. Edward Tilghman, but, before adjournment, the President, Mr. Sellers, arrived, and took the chair.

Dr. Wilcocks read the supplementary report of the Committee on the Zentmayer Lens, and presented to the Society three negatives made in their experiments.

Mr. Graff moved that the report of the committee be accepted, and that it be published in the proceedings of the Photographic Society, also that the committee be discharged, which was agreed to.

Mr. Sergeant moved that the thanks of the Society be tendered to the Committee on the Zentmayer Lens, which was carried.

Dr. Wilcocks moved that three prints be made from the large negative described in the report of the Committee on the Zentmayer Lens, and that a copy be presented to each of the following societies, viz.: The London Photographic Society, The American Photographic Society, New York, and The Northwestern Photographic Society, Chicago.

The motion was amended by Mr. Davids, to send prints from the three negatives, also a copy of the report of the committee.

The resolution, as amended, was adopted.

A communication was read from Mr. M. Carey Lea, on the Equation of Conjugate Foci.

The rough minutes were read, and the Society was adjourned.

JOHN C. BROWNE,  
Recording Secretary.

## REPORT OF THE COMMITTEE ON THE ZENTMAYER LENS.

THE Committee on the Zentmayer Lens have the honor to present the following supplementary report.

Their experiments have been made with instruments of larger size than 8 inches focal length, viz., 12 and 18 inches.

They met on the 21st of March, but, owing to unfavorable weather, adjourned to the 26th.

The first experiment was a trial between a 12-inch Globe lens and a Zentmayer of nearly the same focal length. In precise terms the Zentmayer lens was 12 inches in focal length, the Globe 12.94 inches.

The stop used in the Globe was  $\frac{24}{100}$  of an inch. That used in the Zentmayer was  $\frac{22}{100}$  of an inch, which were in the following proportions to the focal lengths: Globe,  $f 53.92$ ; Zentmayer,  $f 54.54$ .\*

The plates used were 11 by 14 inches. The centre of the lenses being placed three inches from the centre of the plate in order to give, as nearly as possible, the circle of light, which was found by measurement to be  $22\frac{8}{10}$  inches.

The day was favorable, and an exposure of 45 seconds was given to each plate. The negatives were equally well exposed.

In definition and evenness of illumination, there was manifest a decided superiority in the negative by the Zentmayer lens.

The committee then made negatives with the Zentmayer lens of 18 inches focal length, on a plate 18 by 24 inches.

An experiment was made—Mr. Zentmayer using the largest opening for focussing, and bringing the most distant object sharp in the centre of the plate. The smallest stop, which was  $\frac{1}{3}$  of the focal length, was used in the exposure.

The result surpassed the expectations of all present. The instrument possesses all the qualifications which constitute excellence in a lens.

Upon careful examination, no difference could be found between the visual and actinic focus.

To any one possessing a Zentmayer lens, the committee strongly recommend the mode of focussing adopted by the inventor.

A very useful contrivance which accompanies these lenses, is the shutter by which the exposure is regulated.

A still more valuable feature of all the Zentmayer lenses, is the facility with which an alteration in the focal length, and consequent size of image, can be obtained, by an easy change in the combination.

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\* In this mode of expression, the committee have adopted the plan suggested by Mr. M. C. Lea, in the April No. of the *Photographer*.

The last, and not the least important merit possessed by these lenses, is the comparatively low price at which they can be obtained.

The committee herewith present to the Society the negatives made in their experiments, and which have served as the basis of this report. They confidently believe that a careful examination of them will justify the conclusions of your committee.

All of which is respectfully submitted by

ALEX. WILCOCKS,  
F. A. WENDEROTH,  
J. W. HURN,  
HUGH DAVIDS,  
EDWARD TILGHMAN,  
E. BORDA,  
Committee.

PHILADELPHIA, April 3d, 1867.

### PARIS CORRESPONDENCE.

DEAR SIR: I arrived in Paris a week since, in the triple capacity of assisting in arranging the International Exhibition, of studying it after its completion, and lastly to sit in judgment on its merits, as a member of the jury. Many and varied are the impressions that I have received in these few days, and I shall attempt to unroll before your readers a picture of the photography of the Paris Exposition, and of Parisian photography in general.

Your readers are doubtless acquainted with the plan of the Exposition. Everything is arranged in circles; every circle contains products of the same kind, and every sector, products of the same country; the idea is a good one, but I doubt whether the manner in which it has been carried practically into effect, will meet with approval. On approaching the spot from the Champ de Mars, one sees in the distance the clumsy Exposition building, which looks like a large circus. It is surrounded by a park, in which a grand me-lange meets the eye; here an exchange office; there a post-office; a fountain; a temple; a lighthouse; a workingman's dwelling; springs; waterfalls, etc., but all unfinished, dirty, and somewhat chaotic, and the interior of the Exposition has this day (eight

days before the opening), a similar appearance.

With some danger to life and limb, one enters the building through carts, steam engines, and cranes. Inside there is a noise and hammering, like Vulcan's forge, putting the nervous system to a test.

Of the ten concentric galleries which encircle each other, not one is finished. Only the outer circle containing the Parisian restaurants, has progressed sufficiently to commence business. After my first tour through the ten circles, the whole appeared to me like Dante's Inferno: "*Lasciate ogni speranza, questa entrante.*"

The Frenchmen with an eye to business have selected that part of the building which is nearest to the centre of the city. Every stranger who does not wish to go far out of his way, will be compelled to pass first through the French part of the building. Here we soon arrive at the place set apart for the reproducing arts, among which is photography. If you think, however, that by following the peripheral direction you pass through the photographic departments of all countries, you will find yourself mistaken; you will meet with long interruptions where nothing is seen of photography. Some countries even have crowded photography out of the department allotted to it, as, for instance, Prussia, where it forms an appendix to furniture and pianos; or Austria, which places it next to surgical instruments. American photography I have looked for but without success. Most countries are behindhand, and it does not seem as if there was any extraordinary effort to get through.

An order has been issued to finish those portions through which the Emperor and Empress will pass on the opening day; all the rest is ignored for the present.

As under these circumstances I cannot say much, for the present, about the Exposition, I take the liberty to make a few remarks about Parisian photography in general.

Paris, the cradle of photography, contains many votaries whose fame has passed the boundaries of France. Who does not know of Nadar, Disderi, Reuslinger, be it only from their numberless cards of French

actresses? In passing along the long line of the Boulevard from the Poissonnerie to the Madeleine, you will find nearly all these celebrated names. On the roof you find elegant saloons, and in the street more elegant show windows, which in the evening are brilliantly illuminated.

I called on Nadar, the photographer, painter, author, aeronaut, and heaven knows what else. His reception-room contained a number of caricatures of Parisian celebrities, drawn by himself; next a line of pictures showing a person in twenty-four different attitudes, but which are not particularly instructive. The glass front of his atelier faces north, but its southern side is also glazed half way up with blue glass. I did not find the illuminating system very rational, and it did not appear to me to be so much the object to follow certain principles, as to astonish the Parisians by the realization of some ingenious idea. Nadar has tried himself in every sphere. To-day he photographs *demi-monde* by daylight; and, with electric light, to-morrow he descends into the sewers and catacombs filled with skulls and bones; next we see him ascend in a balloon, and it is even said that he has photographed from a balloon, but I do not believe that. A bird's-eye view of two horsemen is said to have been taken by him from a balloon.

But the greatest of all is an oil painting representing an episode of his aerial voyage in the celebrated Giant.

Below is the surging sea, the waves dashing over the rocky shore, the foam reaching the clouds literally; the balloon is lost in the clouds, and the principal object is the basket illuminated by a ray of the sun, and enveloped by the spray of the sea.

In spite of all these efforts, Nadar does not make out well. Next door to him is the atelier for photo-sculpture. It is easily recognized by its glass cupola, which looks like a Moorish temple. I have not inspected the establishment as yet, but have examined the specimens on exhibition. These are, in fact, so surprising that I doubt their being made by mechanical means. Perhaps I will, at some later date, be able to see the working of the process. I myself had my portrait once transferred in relief,

but my friends said that I looked like old Blucher.

I must close for to-day; my duty calls me to the Exposition. In my next letter I shall give a special account of it.

Yours, very truly,

DR. H. VOGEL.

PARIS, March 26, 1867.

## CORRESPONDENCE.

MR. EDITOR: I see by the *Philadelphia Photographer*, that nearly all who write on the subject of treating negative baths, recommend the use of carbonate of soda to neutralize the bath. To me this is objectionable on account of adding nitrate of soda every time I use it. I think it ought to be the photographer's study to keep his bath entirely free from all foreign substances, as it has been so many times proven that nitrate of silver (with the exception of iodide of silver, necessary to work it), entirely pure, makes the best negatives.

The way I neutralize my bath when it grows old, and seems to need an overhauling, which, by-the-way, rarely occurs if I attend to it as it requires it, is with carbonate of silver, which I make as follows: Take one ounce of the bath, add thereto as much carbonate of soda as will precipitate it, then wash it in two or three waters to free it from the nitrate of soda which has been formed; then add this to the bath, and after a good shaking, filter: the bath will then be neutral enough to insure good clear work, and give quick results.

If you think this worthy of a place in your columns, I should be happy to see it there, believing it would be of service to the fraternity.

I know of no one using it, nor do I ever remember seeing it published.

Respectfully yours,

J. W. MOORE.

BELLEFONTE, CENTRE CO., PENNA.

Our correspondent's method, though quite a good one, and new to many, was published and considerably practised some years ago. Those who prefer it will find it to work satisfactorily. ED.



DEAR SIR: Will you allow me to correct a few errors in, and make a few remarks upon, your article headed "Out-door work with in-door lenses," published in your Journal for March? The view No. 1 was made with the front lens of a one-ninth Jamin portrait combination  $6\frac{1}{2}$  in. focus, instead of a half size, and No. 3 with a half size instead of a one-ninth size. If I made the mistake in marking the prints I beg pardon for leading you into the error. But you will see it makes quite a change in the merits of the lenses. Here is a picture nearly seven inches in diameter, "with only slight curvature at the outer edges," taken with the (reversed), front lens of a one ninth Jamin portrait combination, and that too without using a small stop! I have a stereoscopic view which I saw taken from the same spot with a pair of Voigtlander orthoscopic lenses, and including about one-half the angle of view No. 1, in which the curvature of the corner of the building in the left hand side is nearly as much, though less than one inch from the centre of the picture. You were perfectly correct in saying that "by removing the back lens of a portrait combination, a very fair view lens is obtained;" permit me to add, *reverse* the front lens in its cell or otherwise, and place a suitable stop in front, and you have a very fine view lens, which in some points has never been excelled by any lens with which I am acquainted. When the first No. of your valuable Journal was published, and I read the article on "The relative merits of different lenses," by Mr. Wenderoth, I suspected this to be his style of lens, and wrote him asking if it was the reversed front lens he used? I received an affirmative reply from him, with a detailed account of his manner of working, for which I desire publicly to thank him, as I should have done by letter, but for a dislike to trouble him.

In the next number came the report of the lens testing committee, wherein the view lens of Mr. Wenderoth is reported to be equal to the best in central definition and depth of focus, and its marginal lines straight, if a very small stop is used. Under these circumstances I do not feel that the lens is getting the credit it deserves. I

am aware that I injured my case by not waiting till I could make some sample pictures which would do it justice, but I hope some of my brother photos will try the experiment, and report thereon. Let me say to them that the longer the focus of the portrait combination, the larger and better the view to be obtained. You will get no satisfaction from a Voigtlander, or any other short focus lens. The only rule for short stops, which I know, where practice bears out theory, is that given by Mr. Thomas Sutton, in his Photographic Notes, No. 98, May 1st, 1860, viz.: "When the diaphragm is one-fortieth part of the principal focal length of the lens, the depth of focus lies between infinity and a distance equal to four times as many feet as there are inches in the focal length of the lens; for instance, the depth of focus of a view lens, twenty inches focus and half-inch stop, lies between eighty feet and infinity" (the article from which this extract is made, is an exceedingly sensible and practical one, and will repay a perusal, or reperusal by any one who has, or can obtain the No. named; and taken in connection with the article "on the use of the stops," in the first vol. of the *Philadelphia Photographer*, page 152, gives all the information needed). Another advantage of this lens is, with the small stop no focussing is required after the first adjustment, except in some rare case, when a prominent object in the centre of the picture, lies too near the lens to fall within its focal depth. I would not leave the impression that I wish to disparage the higher class of View lenses; I acknowledge and appreciate their good qualities, and would give due credit to the enterprising opticians who have expended so much time and talent to improve and perfect them; but while welcoming any improvement, I would not turn the cold shoulder to an old friend who has done such good service, and who failed oftener from our mismanaging than for lack of ability. While such opticians as Thomas Ross praise them for their "vivacity and pluck," and photographers like G. W. Wilson turn out such gems with them, I feel that they should not be altogether forgotten. But I will not trespass any longer upon your patience with this matter, except to

say, if you do not deem this worthy a place in the *Photographer*, slip it into the waste basket, and correct the errors which one of us have made.

Yours, very truly,

W. L. WILDER.

LACONIA, N. H., March 20th, 1867.

We regret that we made the mistake Mr. Wilder alludes to, but we were led to it by his figures being placed wrongly on the back of the prints sent by him.

While his views are excellent—considering—we cannot agree in thinking his plan is *best* for making views. Ed.

EDITOR PHILADELPHIA PHOTOGRAPHER.

DEAR SIR: I wonder if an editor has time to read *nonsense* from an entire stranger. I presume not, but I also presume he has to *take* a great deal of his valuable time for that very unprofitable purpose. Certainly such a trial can be borne by an editor as patiently as can some of the trials to which the poor photographer is subject. I must tell you, my dear Mr. Editor, that it is a spirit of genuine thankfulness which causes me to trouble you on this occasion. For a long time I have been a careful reader of the *Philadelphia Photographer*, and need not say that I feel as though I were writing to an old and tried friend. We hear of investments which pay, some one hundred and some two hundred per cent., but this one, which amounts probably to ten dollars, has paid me *five times two hundred per cent.* on the original investment, that is, in legal tender, aside from the great *pleasure* I have derived from the same source. When we photographers make pictures, the most substantial remuneration for us comes in the form of "greenbacks," but when we make a *good* picture, which does sometimes occur, it is *very* encouraging to hear our customer say: "*There, now!* that is good; I value it three times more than the money I gave you for it." This kind of remuneration is cheap, nevertheless it is *good*. So I imagine it is with you, Mr. Editor. Once a month you visit us through your welcome journal (which, on account of its beauty, would be readable if it were a Congressman's speech),

crammed brimful of good things for both our eyes and our minds to feast upon—for *all* of which we give you a few cents! Now I think if we do not occasionally tell you how well pleased we are with your efforts to supply our wants, we fail to do our duty, *though we have paid you your price*. It is very strange that when so much valuable information may be had for so small a consideration, there are those who refuse to take it, and those who are so very *needy* too.

If I have trespassed upon your time, I have also relieved my mind of a heavy load, and will be pleased to see you again next month. Yours, truly, R.

CINCINNATI, O., March 7th, 1867.

We thank our kind correspondent "R." for his good and cheering letter. It is to us "like oil upon the troubled waters." The editorial pathway is not all flowery and free from thorns. We know full well, too, of the trials of the portrait photographer, having been several years in that delectable occupation, and we know how precious a few words of commendation and praise used to be. Nothing is more trying than to have your customer receive work from your hands—work that you know to be excellent, and with which you have taken special pains for his sake—without a criticism or a word for or against. An earnest, enthusiastic photographer likes a little appreciation as well as prompt pay, and he deserves it. We feel encouraged by the words of good cheer of our correspondent, and publish them with the hope of encouraging others to strive to excel in whatever they undertake. The reward will come in some way or other, though it may be slow. To those who are the patrons of the hard-working photographer, we would say, do throw in a word of encouragement here and there with the greenbacks and postage currency. It will do you both good.

"R." is right when feeling that we are his friend. A photographic editor naturally feels more in sympathy with his readers than any other. We feel a personal interest in, and friendship for *all* of ours, and are ever ready to oblige them as far as we can in our humble vocation.—Ed.

## PHOTOGRAPHIC SUMMARY.

BY M. CAREY LEA.

ENGLAND.

*Collodions.*—Mr. Jabez Hughes remarks, that he finds that collodions which act well and give clean plates when developed within a few minutes after sensitizing, will often fog if they are kept, either because requiring a prolonged exposure, as in taking interiors by a bad light or other causes of delay, and therefore recommends, as the result of painful and annoying experience, to use only ripe collodions when it is intended to keep the plate for some little time between exposure and development.—*News*.

*Development.*—Mr. Valentine Blanchard affirms that pyrogallie acid for redevelopment, may be very advantageously replaced by an iron solution properly restrained. It is well known that this can be done very well with the collo-developer. And Mr. G. W. Wilson has long since stated in print, that he always uses an iron solution for redevelopment. Mr. Blanchard recommends:

Sulphate of Iron,	. . .	1 ounce.
Glacial Acetic Acid,	. . .	1 "
Citric Acid,	. . .	$\frac{1}{2}$ "
Water,	. . .	20 "
Alcohol, <i>ad lib.</i>		

Alcohol to redeveloper in same proportion as to developer. Mr. Blanchard pronounces this "infinitely superior" to pyrogallie acid, and as tending to bring out additional detail (which pyrogallie acid certainly does). It improves by keeping, and therefore may be prepared in quantity.—*Ib.*

GERMANY.

*Collodion Transfers.*—The *Archiv* contains an article on this subject, directing attention to the facility with which these prints are made and to their beauty. They consist of positives printed in the camera upon a collodion film on glass. These are toned immediately after fixing and very thorough washing, by dissolving 15 grains of chloride of gold in an ounce or two of water, shaking up with a little chalk, filtering and diluting with water so as to make 30 ounces. The bath keeps, but the portion poured over the film to tone it must be rejeeted.

Liesegang remarks that chloride of gold gives a rather cold tone, and that the color is much improved by mixing chloride of palladium with it—this last gives by itself a pure black tone.

The transfer is effected with ease and certainty in the following manner: Pure water is poured over the film, and, whilst thoroughly wet, a piece of albumenized paper is laid carefully on it, avoiding the admission of air-bubbles. This is left to become perfectly dry (first holding vertically a few minutes to let the excess of water drain off). Then, after complete drying, the plate is dipped ten or fifteen minutes in water, the paper separates, carrying with it the image, which is extremely brilliant and full of detail.

Others tone with—

Saturated Sol. of Corrosive Sublimate,	. . .	5 oz.
Sol. Chloride of Gold, $\frac{1}{2}$ grain to ounce,	. . .	1 "

Which tones and removes every trace of veiling. But the plate must be removed and washed as soon as the action is complete. It is then plunged into—

Sulphuric Acid,	. . .	1 part.
Water,	. . .	20 "

Whereupon the film immediately becomes detached.

Dauvois fixes with cyanide and tones with—

Sublimate,	. . .	1 drachm.
Hydrochloric Acid,	. . .	1 fl. "
Water,	. . .	5 ounces.

This solution must be always poured from the same side and in the same direction over the plate. As soon as the film has taken a handsome opal color, it is washed and plunged into—

Hyposulphite,	. . .	1 ounce.
Water,	. . .	1 pint.

Wash off, and apply equal parts of glacial acetic acid and water to loosen the film. Wash again, lay in water, float off the film. Dip porcelain paper in alcohol, and lay it on the film, taking it up, and let it dry.



The collodions recommended for the purpose, are:

## MOITESSIER.

(1.)	{ Alcohol of 90 p. c., . . .	275 cub. cent.
	{ Ether, . . . . .	225 "
	{ Pyroxyline, . . . . .	10 grams.

(2.)	{ Alcohol of 90 p. c., . . .	275 cub. cent.
	{ Ether, . . . . .	225 "
	{ Iodide of Cadmium, . . .	5 grams.
	{ " Ammonium, . . . . .	4 "
	{ Bromide of " . . . . .	2 "

Of (1) and (2), equal parts.

## AUXERRE.

(1.)	{ Alcohol, 820°, . . . . .	150 grams.
	{ Ether, 725°, . . . . .	300 "
	{ Pyroxyline, . . . . .	9 "

(2.)	{ Alcohol, 820°, . . . . .	150 "
	{ Iodide of Cadmium, . . .	2 "
	{ " Ammonium, . . . . .	4 "
	{ Bromide of " . . . . .	1 "
	{ " Cadmium, . . . . .	1 "

Four parts of (1) to one of (2).

## DAUVOIS.

(1.)	{ Ether, 735°, . . . . .	300 grams.
	{ Alcohol, 820°, . . . . .	300 "
	{ Pyroxyline, . . . . .	12 "
	{ Iodide of Cadmium, . . .	3 "
	{ " Ammonium, . . . . .	3 "

(2.)	{ Bromide of Cadmium, . . .	3 grams.
	{ " Ammonium, . . . . .	3 "
	{ Alcohol of 820°, . . . . .	60 "

And a few scales of Iodine. Add 12 grams of this to the whole of (1).

The importance to which this method of transferring has reached, has made it seem worth while to give these details. It is stated that at Disderi's establishment in London, he makes these transfers almost exclusively. As four or eight, card size, are made at once, and are finished whilst the sitter waits, it is evident that this method has its advantages. It will be seen that the film can be detached from the glass by several different methods, either by simply attaching to it albumenized paper, or by first loosening it with paper.

## OUR PICTURE.

WITH a desire to keep the subject alive, and to show what *can* be done with the new size, we embellish the current number of our Journal with another beautiful Cabinet portrait.

Upon the merits of the picture we need scarcely remark. We think our readers are becoming sufficiently well educated to know the difference between a good picture and a bad one, and we will trust judgment upon this one to their tender mercies.

To enable us to print enough in time for this issue, we have used several negatives of the same subject but of different positions. The subject is a Philadelphia lady, to whom we are all indebted for her kindness in consenting to sit especially for our purpose. The negatives were made by Mr. George H. Fennemore, at Mr. F. S. Keeler's rooms, No. 5 South Eighth Street, Philadelphia. We have had occasion heretofore to call attention to the work made at this establishment, and our readers will agree that it is well worthy of great praise. Mr. Fennemore is a most successful manipulator, and his work is hard to excel.

As our readers will notice, Mr. Keeler, with commendable enterprise, has spared no pains to make the new size a success. Old chairs, accessories, and back-grounds have been thrown aside and replaced by new ones. Elegant pieces of furniture have been purchased, and no expense spared by him to secure the very best of things needful for producing elegant photographs, and for fulfilling to the uttermost the proper idea of the Cabinet portrait. We know of no one who has displayed more earnestness and good taste in this direction than has Mr. Keeler, and we are glad to know that he is being amply repaid, and that with him the new size is no longer an experiment, but a success.

Mr. Keeler's light is constructed much like the one described, with a diagram of it, in our Vol. III, No. 30, June, 1866, and after the popular plan in our city. It has a northern top exposure, and east and west side-lights. The glass is all frosted blue, and both at the top and sides inside has blue muslin screens, made to raise and lower at will. At the sides, in addition to these, upright

door-frames or shutters, three feet wide and covered with stout manilla paper, are made to swing so as to throw the light either upon the subject obliquely, or directly, or to shut it off at the sides entirely, as the case may require. This arrangement gives one a complete mastery of the light.

As we have said before, we have used several negatives. The first is a full, sitting figure; the second, a large figure, profile view of the face; the third, a full face, large, three-fourths figure, with a lace shawl over the head; and the fourth a standing figure. The first was made almost wholly by the side-light, all the top-light having been screened off with the exception of a space of  $3 \times 6$  feet, which was left open at the right of the sitter to lighten up the shadows. The whole body was facing the light, the face being slightly turned. We seldom see anything more graceful and effective.

The profile was made with the west side-light, the subject looking npward, directly at the northeast corner of the top-light. Under ordinary circumstances, the light would have been streaming fully into the face, but it was curtained off from the top of the face with a blue curtain. The face is beautifully lighted, and the picture quite equal to the other, so our readers will not complain.

The third was made with an entire top-light, and no side-light. The effect is excellent. All know the difficulty of getting a full face properly lighted, yet in this instance it is admirably done. The construction of Mr. Keeler's light and the internal arrangements are to be highly recommended.

The paper on which these prints are made, is one entirely new to our readers, and to almost every one else we believe. Some months ago, in our editorial columns, we expressed a desire for a plain paper that would give all the brilliancy and detail of albumen paper without the gloss. A few sheets of the paper on which these prints are made were sent us to see how near, upon trial, it would come up to our desires expressed. We can only say that we found it to come nearer to our wishes than anything we ever hoped to secure. Having no name for it, and not even knowing the manufacturer's name, we dubbed the myste-

rious new paper *Alabaster*, on account of its purity, softness, and perfect surface. We would now add that the process by which it is made is patented, and that it is manufactured by Messrs. Follett & Johnston, N. Y. It will, about June 1st, be in the market, when all will have an opportunity of securing all they want of it.

What we have used has been furnished, in order that we might test it thoroughly before it was placed in the market. It has been made "by hand," in the most primitive way, but we need offer no apology for its appearance. The results are unequalled, and we hesitate not, though others may disagree, to pronounce our decided preference for it over albumen paper. Its surface is hard and insoluble, and admirably adapted for fine coloring. It has already been tested by some of our most eminent Philadelphia artists. This will make it valuable for solar work, as well as for ordinary portraiture.

It may be worked by any good working process, but as it will be interesting to know how it has been worked, we give Mr. Fennemore's method.

#### SILVERING SOLUTION.

Nit. Silver, . . .	1 ounce.
Dissolved in—	
Water, . . .	12 ounces.

Precipitate the whole and redissolve with liq. ammonia; then divide the solution into two equal parts, and add nitric acid, C. P., to one-half until it turns blue litmus paper red. Then mix the two together and filter for use. Silver one minute. The solution may be mopped or floated on. These prints were floated, on account of the large quantity required, mopping being too slow.

They were toned in the ordinary gold and acetate of soda toning bath; two solutions.

#### First—

Acetate of soda, . . .	60 grains.
Water, . . .	32 ounces.
Salt, . . .	60 grains.

#### Second—

Chloride of gold, . . .	15 grains.
Water, . . .	8 ounces.

Of the latter take two ounces and neutralize with bicarbonate soda, and add to the acetate bath three hours before using.

They tone very easily and moderately

slow, though these prints were toned after the albumen work of the day had been toned in the same solution.

The paper is rather less sensitive than albumen, and prints a rich cherry-red color. This is all right and no cause for fright. When placed in the toning bath the prints become yellow, and should be toned down to a cherry-red again. They dry about

three shades darker than they look in the water. They tone with great ease and uniformity, and require very little gold. Six sheets of paper (48 of these prints) have been toned with two grains of gold. Such paper as this will secure friends and patrons in every direction. Such pictures as these are a credit and a pride to the man who is fortunate enough to be able to produce them.

## Gaitor's Table.

**SALAD.**—Though just the season for it, we are compelled to crowd *our* dish out this month. Contributors, please bear with us. Their leaves shall not wilt.

**THE "STEREOPTICAN."**—Mr. D. W. S. Rawson, Peru, Illinois, has sent us one of his beautiful and ingeniously constructed "Stereopticans." Aside from its beautiful appearance, it is a most admirable instrument for viewing and carefully keeping stereoscopic slides. In our next issue we shall describe it more fully, with a wood-cut. We regret that it came too late for this. Mr. Rawson is also the inventor and patentee of the "Reflector" described herein. Both of his inventions will be of great use to the public, and will, we trust, have all the encouragement they merit.

**NOTHING IS IMPOSSIBLE IN PHOTOGRAPHY.**—Just as we were going to press we were startled by two of our subscribers, with very important announcements, which are of immense benefit to the workers in our beautiful art. The first comes from a well-known, calm and collected man in Vermont, who declares he has applied *atmospheric light* to the development of impressions of the camera upon the sensitized plate. Now, dear reader, faint not. We all laughed when we were told that the erratic lightning should be tamed and chained, and made to carry our messages with frightful haste along a slackened wire. Need the announcement thrill you then, when we tell you that the very mischievous light that creeps into the dark-room and fogs the negative, may also be tamed, and made to *develop* with lovely clearness and strength? *It has been done*, and the proofs are before us! We hope to be permitted to tell you all about it in our next number. Prepare to be astonished and to feel ashamed that you did not think of it before.

The second startle comes from the sunny South. A Kentucky correspondent claims to have per-

fected a process by which "natural colors" may be photographed, which colors shall be as permanent as any ordinary ambrotype, and requiring about the same exposure in the camera.

This correspondent is cogitating in his kind heart as to the best way of giving the craft the benefit of his discovery, and we hope to be privileged to say more for him in our next. Be it known unto you, that we have some thinking subscribers, and that photography is still alive! We hope to convince you of this soon.

**THE DIAMOND DICKENS, BOSTON, TICKNOR & FIELDS, PUBLISHERS; \$1.50 PER VOLUME.**—The *fourth* of the series of this admirable edition of Charles Dickens' works—*Nicholas Nickleby*—is before us, with 472 pages and 16 full-page illustrations, by S. Eytinge, Jr.

This is a volume specially interesting to our readers, because it has an *artist* character in it—the *world*-renowned Miss La Creevy. Miss La Creevy utters the following words of commiseration on page 65 of this volume: "What, with bringing out eyes with all one's power, and keeping down noses with all one's force, and adding to heads, and taking away teeth altogether, you have no idea the trouble one little miniature is!"—"and then people are so dissatisfied and unreasonable, that nine times out of ten there is no pleasure in painting them. Sometimes they say, 'Oh! how very serious you have made me look, Miss La Creevy;' and at others, 'La, Miss La Creevy, how very smirking!' when the very essence of a good portrait is, that it must be either serious or smirking, or it is no portrait at all."

**THROUGH** Mr. W. Irving Adams, of the Scovill Manufacturing Company, we have received a number of pictures made at Messrs. Jordan & Co.'s galleries, 229 Greenwich Street, New York, by Messrs. Augustus Twitchell and Arthur Hargrave. These young gentlemen *love their business*, and are striving to make good work and to



excel. That they succeed, the pictures before us are admirable proof. They seem to be particularly successful with little children; posing them in their most natural and graceful positions. Some of these we have are worthy of study by any one. The children are all beautiful, but we cannot say quite so much for those of grown persons sent us. The care and enterprise of these young men deserve success.

MESSRS. J. GURNEY & SON, 707 Broadway, New York, have made several very elegant cabinet portraits of Madame Parepa-Rosa, the enchanting prima donna, which are excellent. We are informed by these gentlemen that, with them the new size is a success. They have ordered 7000 mounts and the greater portion are already used. They prefer to call them *Carte Imperiales*, instead of cabinet portraits. We do not like either, but what else shall we call them? Will some one suggest a name?

Prof. Towler thinks "*Carte Imperiale*" is used in New York because "many Americans do not speak good English; and who, having been brought up with French nurses, have imbibed French nutriment, and thus jabber French colloquy—their mother tongue."

A MASSACHUSETTS paper says "a carbon process has been discovered by Mr. Robinson, of Lowell." It means Mr. Rowell, of Boston.

"IMPERIAL FRAMES" FOR THE CABINET PORTRAIT.—Scovill Manufacturing Company, 4 Beekman Street, N. Y., have sent us a box containing some beautiful Union Frames for the new size. They are after new and patented designs, and are assuredly very pretty. A great deal of enterprise has been displayed by this house in endeavoring to meet the wants of the trade in this direction. They believe the new size will be a success, and are doing much to make it so. Their frames and other specialties for cabinet portraits are already scattered far and wide. To all of these they have added the manufacture of the superior "Pearl" paper. So popular has this paper already become, that unprincipled parties are imitating it and selling papers for it which are not genuine. Secure that manufactured by Scovill Manufacturing Company, and you will be pleased.

DURING our visit in Boston, we called upon Messrs. John S. Notman & Co., at their new rooms, No. 174 Tremont Street. They have everything fitted up in most tasteful, elegant, and artistic style. A commodious reception-room,

splendidly furnished parlors, convenient work-rooms, and, above all, a splendid glass-room, together make up an establishment unequalled in this country. Their glass-room is not large, but sufficiently so, and is similar in construction to one of Mr. Wm. Notman's in Montreal. Here most effective pictures are made. All pictures are taken by appointment, and the prices secured and willingly given for such admirable work, would horrify those who think they *must* make the new size for \$5 a dozen. Mr. Notman not only desires to lift up photography from degradation, but from prices less than it is worthy to receive; and success to him.

MESSRS. WENDEROTH, TAYLOR & BROWN, have sent us an exquisite water-colored picture of the lady whose portrait appeared in our last number. It is printed on alabaster paper, showing the great value of it for coloring upon. It will receive the finest stippling of the brush with beautiful effect, and is easy to color upon. Messrs. W. T. & B. have a world-wide reputation for their unequalled colored photographs and miniatures.

PHOTOGRAPHY IN COURT.—In a recent suit for damages by a widow for the death of her husband, caused by falling into an excavation in front of a building, the defendants had subpoenaed about forty witnesses to prove that the place was not dangerous. Before they were asked to give their opinions, however, they were greatly astonished to see the plaintiff produce photographs of the place, taken the morning after the accident, and showing more plainly to the court and to the jury the state of affairs than hundreds of witnesses could. The photographs were sworn to, and could not be denied, and were the chief witnesses for the plaintiff, who gained her suit. Photography never perjures itself, and woe be to him who would perjure himself with it against him.

MR. G. H. LOOMIS, Tremont Row, Boston, was found very busy when we called upon him. We are sorry to hear from him that the Massachusetts brethren have allowed him to be about two hundred dollars out of pocket on the "stamp abolition" business, while they are enjoying the fruits of his efforts. This is a pity, and should not be the case.

WE regret to learn that on account of the ill health of the senior partner, Messrs. Bendann Bros. are compelled to close their New York Rooms on May 1st, and confine their business to the Baltimore house alone.





Boston Public Library.



T H E

# Philadelphia Photographer.

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## ON THE NATURE OF THE LATENT IMAGE.

BY M. CAREY LEA.

I PROPOSE here to set forth in a very brief way, some entirely new views on this subject. In the long and laborious series of experiments which I have from time to time published, I have endeavored, so far as I could, to fix the actual facts and to determine whether or not such a thing existed as a physical image distinct from chemical reduction. It remains to explain, if possible, by some view in harmony with the present state of our knowledge of light, how and why such a thing as a physical image exists. I shall endeavor in these lines to show that this conception, hitherto regarded as so abstract and hypothetical, is in reality exceedingly plain and natural, and running perfectly parallel with well-established, and even familiar facts.

When light, considered simply in reference to its illuminating power, falls upon any substance, we are accustomed to consider the effects of that illumination as passing away at the same instant of time that the illumination terminates. But there are a vast number of well-recognized exceptions to this rule, which we know under the names of *phosphorescence* and *fluorescence*.

If certain bodies, known as "phosphorescent," be exposed to a bright light, such as

the direct rays of the sun, and then be removed to the dark, they will emit a very distinct light. This light continues to be emitted for a time of variable duration. With some substances it continues for days, with others it terminates in a few hours. Becquerel has enormously extended the number of substances that act in this way, by showing that the period of time during which they phosphoresce may be exceedingly short, and so escape ordinary observation. He constructed an extremely ingenious instrument by which phosphorescence could be made evident even when it continued for but a very minute fraction of a second, after the light which fell upon the substance was removed. These facts, then, embraced under the general term of phosphorescence, prove incontestably that bodies may, by light, be thrown into a state of vibratory motion, lasting for a longer or shorter, sometimes a very considerable, time after the exciting cause is removed, and that, so long as this vibratory movement continues, they will themselves emit light.

But light, such as it comes to us from the sun, is endowed with another property distinct from illumination, and which we conveniently term *actinism*. *There is not the slightest reason to doubt that bodies may be endowed with the power of being impressed by these rays, and retaining them precisely as bodies may the illuminating rays.* Herein

lies the explanation of the physical or latent image. It is simply a phosphorescence of actinic rays. Once stated, the whole matter is so evident as to carry conviction with the simple statement.

Let me then explain the manner in which this phenomenon takes place with iodide of silver. Pure iodide of silver undergoes no decomposition by light when thoroughly isolated from all substances, organic and inorganic, which are capable of aiding in effecting reduction. But, if exposed to light, it continues for a certain time thereafter to retain the vibrations it received; *and just for so long as these vibrations continue, will it be instantly decomposed if brought into contact with any substance which would have caused its decomposition had the two been subjected to the action of light together.*

Iodide of silver, if exposed to light in the presence of pyrogallic acid and nitrate of silver is reduced. If the iodide be exposed separately, it is thrown into a state precisely similar to that of a phosphorescent body, except that it continues to vibrate in unison with the actinic, instead of the illuminating rays; and so long as this condition remains, if it be brought into contact with the above-mentioned substances, the effect is the same as if they had been exposed together to ordinary light.

For this property of light I propose the name of ACTINESCENCE, a name which, though not in every respect suitable, has the great merit of indicating the parallelism of the phenomenon to that of phosphorescence.

The more we examine these phenomena, the more we shall perceive that *actinescence must*, so to speak, exist. *For different phosphorescent bodies emit light of very different colors*, showing that their respective capacities of prolonged impression are confined to rays of a certain refrangibility differing for each in each case. Now we know that the actinic influence accompanies rays of a certain refrangibility, especially the violet, the indigo, and the rays immediately beyond the visible. The permanence, therefore, of these actinic rays under suitable circumstances, is no more difficult of conception than that of any other rays—and that this permanence exists for illuminating rays is a

fact which has been known and recognized for centuries.

On what then does the faculty of receiving a latent developable impression depend?

On the possession by the body of two properties: First, that of being decomposed when brought into contact with certain agents in the presence of light. Second, that of being able to *retain the influence* of the chemical rays, so that on being brought into contact with these agents *after* removal from the light, the same decomposition may be brought about.

The first of these properties is *sensitiveness to light*.

The second is *actinescence*.

The joint possession of the two renders a body capable of receiving a latent or physical image.

It is easy to conceive that a body may be actinescent without being sensitive to light. In fact, substances that phosphoresce with a blue light are probably actinescent also, but not being sensitive to light, they of course can form no latent image.

To this class undoubtedly belong those substances which possess the property hitherto deemed so mysterious, of storing up chemical power after exposure to light. When this fact was first published by Niepce de St. Victor it was received almost with ridicule. But in the views here explained, this remarkable fact finds its natural place so completely that its existence would even have been anticipated, had it not already been observed.

On the other hand, substances that are merely sensitive to light when brought into contact with others, but which have no power of retaining light impressions until the decomposing agent is brought into contact with them, are likewise incapable of receiving latent images. But these capacities may exist conjointly, as we see in the case of a large number of silver compounds.

This new view will, I think, dispel all the mystery that has seemed to some to envelop the idea of a physical image, and brings all the most obscure facts of photo-chemistry into parallelism with well-understood and very simple phenomena.

Phosphorescent bodies, after ceasing to shine, recover that power by another exposure to sunlight. So pure iodide of silver, isolated from all other bodies so that no chemical decomposition can take place, is capable, as I have elsewhere shown, of entirely losing one physical impression and receiving another, and doubtless an indefinite succession of such. The parallelism is perfect.

This new theory which I here bring forth, and which I shall develop more thoroughly later elsewhere, rests upon certain facts which I have long advocated and argued, and which are now, I believe, accepted very generally. They are, principally:

1st. The sensibility to light of pure iodide of silver.

2d. The spontaneous re-sensitizing of pure iodide of silver.

These two capital facts are the foundation upon which I propose to erect the foregoing new theory of photo-chemistry.

## WHAT SHALL WE DO ABOUT IT?

EDITOR PHILADELPHIA PHOTOGRAPHER:

ALTHOUGH your journal teems with much valuable information, it is to be regretted that it has not more strongly urged upon its readers the all-important subject of incomes and out-goes, and I would very respectfully beg leave to call the attention of your legion of subscribers to the most important of all items, that of **HEAVY EXPENSES AND CONFLICTING LOW PRICES**, both of which are entirely antagonistic to each other. Here, for example, in Tennessee, we have to pay the immense state and county tax of one hundred and fifty dollars; city tax, twenty-five dollars; Internal Revenue, ten dollars; an ad valorem tax of five per cent., besides an income tax and a tax on sales to the state and city; add to this, house-rent, cost of stock, an operator's salary, and other incidental expenses, and you will readily see that often, when figuring up a month's sales, that nearly, if not all, has gone for expenses, with the worry and work thrown in gratis. For the benefit of what? To some, perhaps, of being an artist. But I see it too plainly in a vastly different view.

We are all working for a living, and to lay up something for other days—perhaps for the time when old age overtakes us in its relentless strides. I hope that those engaged in photography everywhere will compare figures in their respective localities, and they will readily discover that while the prices of pictures are much lower than at any time since the days of Daguerre, that every other commodity is proportionately higher, and, after comparing deductions, if there is a photographer in the land who will still cling to the absurd idea of card pictures and cheap prices, I feel confident that your columns will be opened for his views, and we will all listen to the reading of his reasons with as much pleasure as we would to Jenny Lind in one of her favorite songs. The true way, however, and the way that we will eventually be compelled to look this matter in the face, is to see the delusive thing in its *bona fide* light by the reflection from dollars and cents, and we will be compelled to raise our prices to at least double what they now are. The demand for pictures partially ceased with the war. It has been supplied, and the market is surfeited. Hence the cry of “dull times” all over the country, for the card-picture is an old thing. Low prices and card-pictures answered well enough during the war when our rooms were filled from morn till night with eager customers, but this has ended; things have changed from the old to the new, and photographers, like every one else, must change to suit circumstances. And, as we have fewer customers, we must have higher prices, therefore, the quickest and most expeditious way to accomplish this end is to discard the card-picture entirely, and IMMEDIATELY COMMENCE THE NEW SIZE at twelve dollars per dozen, and keep the price at that figure. Dozen vary from the fixed price, and the whole structure will totter and tumble worse than ever. Let us all rigidly persevere, and make the new size the very best that we can, and if the low-priced gentry still cling to small work and still smaller prices, their mode of trade will soon tell upon them, and they will eventually fizzle out and be known no more, to give place to some more enterprising. Then it is to be hoped that we will be enabled to



raise the profession of photography to a height that it has wofully fallen short of for "lo! these many years," and that the time may yet come when photographers will not be answered as the writer was a few days ago by a physician of this city. In reply to a question, he was answered that the price of card-pictures was six dollars per dozen. The response was, that that was too much, as the price of photographs, like other things, had yet to find its level, while, at the same time, this veritable physician was charging us his fee, five dollars per visit, a price generally adopted by his profession. It takes, I am confident, as much time, patience, expense, and *brains* to make a photographer as it does a physician, and why should not the one be as well paid for services as the other. One thing is as sure as fate, that photography must be raised from its present low grade and dependence upon small prices, or "Othello's occupation's gone." We must have such prices as will pay for outlay of capital, &c., and will stimulate us to make good work, or the art will deteriorate into almost nothingness; its disciples will be compelled to abandon it, and resort to other expedients in order to support themselves and their families. I am in hopes that some abler pen than mine will further urge this all-important and most vital matter upon your readers, that every photographer will put his shoulder to the wheel, and, as a humble but aspiring member of the craft (as the movement may start from date), I hereby move, that at the next meeting of the Philadelphia Photographic Society, that it be requested to set a tariff of prices, with such general rules annexed as they in their judgment may deem best for the interests of the photographers of the United States, and that a committee of one or more be appointed in every city and town, whose duty it shall be to call upon every person engaged in photography, and solicit their names and co-operation in the great movement. Some great and decided move must be made simultaneously, with as few dissenting voices as possible. Until then, photographers cannot reasonably hope to gain by their profession either reputation or riches.

PRO BONO PUBLICO.

MEMPHIS, TENN.

There is no doubt but what our correspondent looks upon this all-pervading trouble in the right way. The ruinously low prices that are now received for pictures, is both profitless and degrading, and a change must be made sooner or later. No more pictures are taken on account of the low prices. They must be raised, and the advance will be given if the work is good. Good prices and correspondingly good work should be the rule, and prosperity will follow. Push the new size with all your vigor and talent, and it will go.

We would amend our correspondent's motion, and ask for a convention to consider this growing evil.

Our pages are free to a discussion of the matter. Our whole heart is for the whole good of the whole craft, and we shall gladly join them in anything that will enhance their interests. We hope the subject will be freely discussed, and that photography will, *ere long*, arrive at that dignified position to which it is justly entitled.

Passing down the street a few days ago, we found a sign lying on the pavement that had been blown over by the wind. We picked it up and looked to see what it was. Imagine our surprise upon seeing "16 for 50 cents," on the other side. Did we set it up in its place? Not we. Our disgust was too intense.—ED.

### A few Remarks on the Management of Photographic Residues,

#### And Estimating Their Probable Value.

BY F. W. HART.

THE opening of the photographic season affords a fitting opportunity for a few notes on the economics of photography, having special reference to the by-products, or waste, as it is usually termed. Bearing in mind the old adage, that "A careful beginning makes a prosperous ending," let us consider, first, the preservation of the paper after sensitizing. It is customary, with a great many, to prepare their paper the evening previous to the day of using it. To those doing so, I would suggest that they should accustom themselves to observe the variations of the barometer, as it would save

them much disappointment, and be a guide to the quantity of paper sensitized. Although papers prepared with due care will retain their whiteness and good qualities for many days, and even weeks, still, I think, the best results are more easily obtained within twenty-four hours of the sensitizing. Much has been said about the economy of adding different substances to the silver solution. Of all those spoken of I give the preference to a small quantity of gelatine, for reasons stated in my last paper read at the South London Society. Good results may be obtained with even a plain solution of 15 grains of silver to the ounce, with *certain* NEGATIVES; but *time* occupied in the operations must be taken as an element of expense; and rapidity of production will often be more economical than the saving supposed to be effected in the use of very weak baths.

The next point is the cuttings or trimmings from prints. As these must be saved at some stage, it is better to proceed with that operation before washing the silver off; the only precaution—beyond what would be necessary if the pictures were toned and fixed—is, that the part forming the picture should not be touched on the surface with the fingers or anything which would cause spots. This method has been adopted largely, and those not having already tried the plan will find it much to their advantage to do so; it takes no more time; is a considerable saving in the gold for toning, as these trimmings, being generally the most reduced by the light, the gold solution is greedily precipitated by them. Another advantage is, that the silver left in the paper is recovered with less expense than if allowed to be dissolved out by the hyposulphite, after which the clippings are next to valueless. As an illustration of this, I will give you the result I have obtained from a carefully prepared sample of each kind. Fixed cuttings and prints weighing 460 grammes yielded 20 grammes of a fine black ash, the result of reduction 1.31 gramme of metal, containing a trace of gold, being between 6 and 7 per cent. of the ash, or .0284 of the unburnt cuttings. The unwashed cuttings and paper weighed 1.370 grammes, yielding 128 of a light-colored ash when burnt, the silver from which

weighed 80 grammes, being 62½ per cent. of the ash, or nearly 6 per cent. of the weight of the unburnt paper. Thus you see the unburnt cuttings of one kind are about as rich as the ashes of those which are fixed. The unwashed and unfixed trimmings, together with pieces of paper that have been employed to absorb the last drops of silver from the sheets when sensitizing, or any other stray pieces, are kept in a bag or other receptacle, which I would advise, should be preserved free from the contamination by metallic articles, such as pins, nails, &c. When such are burned with the papers they alloy the silver, of course lower the standard of value, and require a greater proportion of chemicals and fuel to eliminate them in the refining process. When the paper residues have accumulated to make it answer the purpose to burn them, do it in a stove where there is but little draught, so that the dust may not be carried away; only add small handfuls at a time, as they continue to be reduced to a dusty ash, the nitrate of silver which was left on the trimmings, assisting materially to consume the paper by the oxygen liberated in the decomposition of the nitrate by heat. The color of well-burnt and rich paper ashes is rather a light stone color.

To estimate their value, they must be well rubbed down, when they will form a rather dense powder; then passed through a fine sieve on a large sheet of paper; then collected into a heap and passed through once or twice more to insure a thorough uniformity of composition. Now take (say) 400 grains, weighed carefully in the ordinary small scales; transpose the ashes and weights to see if the scales are still equilibrated; if so, place the ashes in a mortar or cup, and mix intimately therewith about twice its weight of powdered nitrate of potash. Procure a dry piece of pine, and ignite a small portion in the centre, continuing to add the mixture, little by little, until all is reduced, and a spongy mass of silver and flux remains. (Photographers are indebted to the late Mr. Hadow for this suggestion.) For small quantities it is very convenient, where the operator is not acquainted with the use of the blowpipe or other regular methods of assay. Now scrape

the mass from the wood, put in the mortar, and pound it well, taking care that no particles are projected out of the mortar; it can be washed with hot water to rid it of soluble flux, if you procure a small gold-washing-basin, which is simply a very shallow cone, from 12 inches and upwards. Place the pulverulent silver and flux therein, pouring on water, and agitating. The superior gravity of the metallic particles will have brought them to the bottom, where they can be collected, dried, and weighed, and thus the percentage obtained. If it is desired to obtain a knowledge of the degree of fineness, they must be dissolved in dilute nitric acid, and estimated by the volumetric method, that being the only *ready means* at all within the reach of the general photographer. A little more troublesome method—where they are not possessed of a volumetric apparatus—is to precipitate the silver from the above nitric solution (in the dark-room), with hydrochloric acid; pour off the clear solution, and give it several changes of water; transfer the chloride of silver to a porcelain cup, dry, and fuse (still by artificial light), until it forms a transparent fluid; then allow it to cool, and having previously tared the porcelain dish, the weight of the fused chloride can easily be obtained, as it remains in the cup; every 100 grains of which you may reckon, contains  $75\frac{1}{4}$  grains of fine silver, and from that make your calculation as to the amount in the bulk of residue. I have suggested a rather large quantity to be taken for the assay, in consideration that it allows a little latitude in the rough weighing which it would be subjected to, and is therefore less likely to lead to important differences between the assay and the bulk.

We now turn to the washing before toning. I prefer to use as little water as possible; for example, about as much water—and that slightly warm—as you would use solution for toning; turn the prints about, and transfer to another dish with a like quantity of water, and so on for four changes. These can be put into a pan or jar—a two-gallon one would be quite large enough for any one using one quire of paper per week—and about one and a half to two drachms of commercial hydrochloric acid

added for each sheet of paper. It is far better to use the acid, as it adds nothing to the specific gravity of the liquid, and the chloride of silver will aggregate much quicker, the solution not remaining milky-looking anything like so long as when handfuls of salt are thrown in, as is the usual practice. The same treatment with hydrochloric acid, instead of common salt, is recommended for disordered negative baths, the ordinary washed and dried chloride from which generally yields from 70 to 73 per cent. of fine silver when reduced according to the method described by me some three or four years since. I know several photographers who do not believe in the economy of putting disordered baths in working order again, but have new ones periodically, or after a certain amount of work. Thus they think to secure a greater uniformity in the negatives. This may seem extravagance, but I can assure you it is not so much so as it looks. Here is a case in point, out of many similar: 10 litres of disordered bath solution (about 17 pints 12 ounces, originally made up at 30 grains to the ounce), yielded 404.44 grammes of fine silver. This, according to calculation, represents 636.689 grammes of pure nitrate of silver; this, deducted from the quantity the 10 litres originally contained (viz., 684.2 grammes), leaves a balance of 47.514 grammes expended in use, and the trifling loss in the reducing. The whole expense for the use of the bath being 12s., or a trifle under 8d. per pint, I will leave it to you to say if that amount is commensurate with the time and trouble expended, leaving out of the question the risk of annoying your sitter from producing an indifferent negative, or preparing four or five plates, and then, with all your extra care, it may not be up to the standard. I will now show you a simple experiment, which will at once give you an idea of the amount of silver a sample chloride contains, and, at the same time, tell you if your chloride has been tampered with. I have, in this small test-tube *some washed chloride of silver*, weighing .863 of a gramme, as taken from the bulk. I gently heat it over the spirit-lamp flame until it fuses and it forms a transparent liquid, showing that the chloride contained little or no foreign matter.



On putting this in the balance again, I can make my calculation of the probable value of the bulk; and thus it serves as a preliminary test. In this other tube I have some chloride mixed with some white material to make the bulk appear the same. Now, on trying to fuse this, it will remain opaque, thus showing it is not the genuine article. If the chloride is found to be mixed with earthy matter, it can be separated by strong liquid—ammonia, cyanide, or hyposulphite—and reprecipitated.

The hypo fixing solutions present greater difficulty. Where only a small quantity is used, it is scarcely worth saving (where space for stowage is an object); but not so, however, when two or more gallons are used per week. Sulphide of potassium is generally recommended, but a current of electricity passed through it is the best and the most expeditious, if proper care is taken to keep the plates clean; if this is not done, the action stops, and the process is unjustly blamed.

The gold solution, when done with for toning, may be put in the hypo (or, if made acid, precipitated with iron solutions), as the latter also contains gold and the former silver; so they might as well be parted in one operation by dissolving the metal, after reduction in sulphuric or nitric acid.—*Photographic News.*

## PHOTOGRAPHIC VARNISHES.

BY M. CAREY LEA.

THE deep hold which photography has taken upon the public mind, the vast amount of time, talent, and thought which is bestowed upon it, makes every precaution that is taken to preserve the results of so much effort important. Although the question of varnish is one of the humbler branches of technical photography, it is one which no photographer can afford to disregard. Nor does it seem altogether prudent to content one's self with applying commercial mixtures, the composition of which is kept secret, and may even vary from one year to another with the price of materials. It rather seems advisable for photographers to assure themselves that they have what is

best by preparing for themselves what they require.

Sufficient attention has not been given to the very great differences that exist between varnishes in their effect upon the negative. All varnishes increase the transparency of the negative. The necessity for using them at all, is an evil, and I think most will agree with me that *this evil increases in the direct ratio of the transparency produced*. Nevertheless, many admire great clearness in a varnish, and after applying one that dries clear on a cold plate without any warming, think they have found the *ne plus ultra* of a negative varnish, without discovering what I believe is the case, that such varnishes reduce the density of a negative to an unusual degree.

This reduction is a real evil, and not one counteracted by having previously redeveloped a little more to allow for it. It strikes at once at one of the greatest charms of a negative—transparency of shadow. Those delicate details which are just able to print themselves on the prepared paper, may be weakened by varnishing, so that they behave like clear glass, or so nearly so as greatly to mar their effect.

It becomes, therefore, an object to use a varnish which shall thoroughly protect the negative, at the same time reducing its strength as little as may be practicable. I am inclined to think that this is a reason for rejecting the benzine varnishes, and keeping to those made with spirit, for they, so far as my experience goes, effect this object best. I express the opinion, however, with some reserve. My experiments with varnishes were carried just far enough to obtain a thoroughly good and reliable formula, based upon correct principles. And these seem to be as follows:

*Lac* is an excellent gum; it is not only hard, but tough. *Sandarac* is a beautifully clear and transparent gum, much more easily and completely soluble in alcohol than lac, but much more brittle, as any one will find by carefully breaking pieces between the fingers. These two are the resins usually employed in negative varnishes, though often other substances are mixed and sometimes substituted. This is an error, and the proportion of sandarac used is generally

much too large. Also the quantity of resin in the varnish seems generally too small for the adequate protection of the negative.

Shellac has the disadvantage of being a strongly colored resin, and giving a dark varnish. Some have affirmed that this dark color is no disadvantage, and that a negative prints as rapidly after varnishing with such a mixture as when a pale one has been used. It seems to me that there must certainly be some mistake about such a statement. At least I am certainly an advocate for a pale varnish.

I therefore strongly advise the use of bleached lac. Some affirm that this form of lac always contains salts from the bleaching. Perhaps it may, sometimes; that which I have been using, was perfectly free from all injurious admixture; it was the very first specimen that I tested. I presume, therefore, that it cannot be difficult to obtain good bleached lac: at any rate, it is easy both to test it, and, if needful, to purify it.

To test it, dissolve a small quantity in alcohol, and filter. Dissolve also a small quantity of nitrate of silver in alcohol, and mix. If no precipitate forms, either at once or by standing, the lac may be used without hesitation. For, if we suppose that chlorine had been left in the resin, it must either be—

- a. As a chloride.
- b. As a hypochlorite.
- c. As a chlorine compound with the resin itself.
- d. As pure chlorine retained by the resin.

Any of these forms would precipitate nitrate of silver, unless we suppose that form c be one so closely combined that even the powerful affinity of chlorine for silver will not unlock it. And even in this case, I think we have little to fear from any action of such a compound upon the plate.

If a precipitate were produced by the silver solution, the best plan would be to procure another lot of the resin. But it might be purified by careful grinding with water, as suggested by Mr. Alfred Taylor in his use of lac for positive printing.

The dissolving of bleached lac in alcohol is by no means the difficult thing that some have asserted—probably in consequence of using a too watery alcohol. Good 95 per

cent. alcohol should be poured on the coarsely powdered lac in a flask, and left (corked) as long as convenient: not less than 24 hours, and in a moderately warm place. It is a good plan to put the alcohol first in the flask, and heat it till it boils, then drop in the lac. Heating over a flame is objectionable after the lac is added, because it adheres to the bottom, and cracking would probably result.

I prefer not to put in the sandarac at first, because the lac solution is always a little difficult to filter in consequence of the fine powder of insoluble resin suspended in it, and the filtration is easier whilst the varnish is thinner. This is not very important, however, less so when a varnish less thick than mine is made.

My proportions are as follows:

Bleached Lac, . . .	10 drachms.
Picked Sandarac, . . .	5 “
Alcohol, . . .	12 fluid ounces.

Leaving out the sandarac, I let the lac dissolve as completely as it will, and then filter it through paper. Take rather a large filter, soak it thoroughly with clean alcohol before pouring in the varnish, or the fine stuff will at once choke the pores of the paper and stop the filtration. Pour off quietly so as to keep the thicker parts for the last. Cover up the funnel with a glass plate. The last portions may be thinned with an ounce or two of alcohol to enable them to get through, and still leave sufficient body.

Next add the sandarac to the filtrate, and filter again. This second filtration is no trouble at all, as the varnish goes through like so much water (of course a fresh filter is to be used).

It has also been proposed to decolorize shellac by animal charcoal. In some respects, this method (which I have not, however, used), would have its advantages, because the fine scales of unbleached lac dissolve more readily in alcohol than the thick lumps of the bleached resin. The mode of operation is to boil the animal charcoal with the solution of the lac in alcohol until the color is sufficiently lightened. When this method is employed, a little of the animal charcoal should first be boiled with a small

portion of alcohol, and then the filtered alcohol be tested to ascertain that the charcoal contained no impurity which the varnish could take up from it.

To apply the varnish made according to the foregoing formula, the plate is to be slightly heated, for which a Bunsen's burner answers perfectly.

The bottom of the plate should be pleasantly warm when felt by the edge of the right hand (the lower part of the thumb and side of the hand), not hot. The varnish is poured on, tilting the plate first forwards, then backwards, alternately, till it is covered, so that the pool of varnish shall continually spread in all directions. If any smoke rises, the plate was much too hot. The plate is tilted, the varnish poured off into another bottle and held vertically for a minute till the varnish sets. Holding before a stove to dry is perfectly useless, and only increases the labor.

Although these details seem somewhat circumstantial, the whole process is a very easy and simple one, and I do not see that the quality of the varnish could be better. It gives an exceedingly hard coat, and a tough, not a brittle, hardness. I thought, at one time, that toughness might be increased by the addition of a little Canada balsam. To verify this in a conclusive manner, I hunted up a specimen of balsam that had stood on a shelf for twelve years, and which was completely resinified, and examined this resin as to its qualities. It proved to be far inferior to lac, had no toughness, was more brittle than sandarac, and darker in color than either bleached lac or sandarac. The addition of such a substance could in no way help the varnish in permanence or durability. It does not seem that essential oils, so often recommended, can have any effect except that of giving out pleasant odor during the varnishing: their volatility insures that they will disappear along with the odor, or soon after.

In a word, I do not think that anything is to be found better than the formula I have given above. If I altered it at all, it would be to diminish the proportion of sandarac, and correspondingly increase that of the bleached lac, a substance whose quali-

ties for negative varnish can scarcely be too highly prized.

Before concluding, I feel that I must revert once more to the question of transparency. To my mind, the influence of varnish is always regrettable, and therefore the less that varnish changes a negative, the better. Few, I think, appreciate how much varnishes can differ in this respect. I have, in my possession, a commercial varnish much used here, which works with remarkable ease and smoothness, requires no heat, and leaves a surface whose smoothness and polish cannot probably be equalled by any spirit-varnish (it appears to be made with benzole). But it reduces the image more than any varnish that I have compared it with.

One reason that photographers do not generally appreciate these differences, lies in the fact that it is difficult to measure in any given case what effect has been produced, in comparison with what would have been produced in the same case supposing a different varnish had been employed. But the comparison is easily and exactly made in the following simple manner:

I take the finest and thinnest French letter-paper, cut a number of pieces of a convenient size, pour out the varnish into a clean pan, plunge the paper completely under it for a half minute, and then dry it, either cold or hot as the case may require. This I repeat with each varnish to be tried. The difference in the opacity of the paper after this treatment gives an excellent indication as to the properties of the varnish. I inclose some specimens of paper so treated. Those marked *C* have been treated with the commercial varnish before spoken of, and those marked *L*, with that here recommended. The marked difference in the effect will be observed. Those that are dried with heat are so marked, and can be compared accordingly.

The specimens alluded to are at this office, where they can be examined by those interested. There is certainly a vast difference in the transparency of the two varnishes.—  
EDITOR P. P.



### VOICES FROM THE CRAFT.

THERE is nothing more pleasing to us, in our editorial capacity, than to have our readers communicate to us what they think will be of benefit to their co-workers. None of us are so wise but what we may learn from others. We seldom visit any photographic room without seeing, even in the humblest of them, something new to us, worth remembering and printing for the benefit of our readers. If we had the time to visit all of our subscribers, we feel sure we could collect enough matter to enable Ticknor & Fields to fill a volume as large as their "Diamond Dickens," and with quite as many "full-page illustrations." However, as such visits, although they would give us much pleasure, would entail the suspension of the *Photographer* for some months, we must stay at home, and make the request that our subscribers look about them, and communicate to us, from time to time, all that they think will be of value to others. Do not be afraid to do so, because you "think the thing is so simple that every one must know of it." We will run *that* risk. We will open a new column for you, and hope you will keep it full every month. What follows, has already been received, and will do splendidly to begin with:

"Seeing in the last number of the *Photographer* a little communication from the South London Photographic Society, headed 'Ingenious Appliances in Photography,' giving a description of his filter (Mr. Ennis's), I thought I had one more simple and better than his, of *my own contrivance*. I take a common glass-chimney, such as is used for coal-oil lamps, invert it in the top of a cyanide or other wide-mouthed bottle, cork up *both* ends of the chimney, cut a hole through the lower cork, and run a glass tube through it from the bottle to the chimney; now cut a few slits in the same cork, and then wind clean cotton-wool around it, and it is ready for use. The tube remains a fixture in the cork, but can be removed to clean, &c. Pour the collodion into the inverted chimney, and *cork* up the upper end, then you have as nice a filter as you can desire.

"I find it very convenient and *cheap*—cost of chimney, tube, and corks, being less than twenty cents.

"Perhaps you do not understand quite what I mean, so I will make a rough sketch which will make it plainer to you.



"Very likely, I should not claim this as original, as it is so simple that perhaps hundreds of photographers use it, but I never saw it used by any one.

"I will gladly help any one all that I can, although I do not claim to know much, having had only about eighteen years experience, and will be glad to learn more.

"C. ALFRED GARRETT.

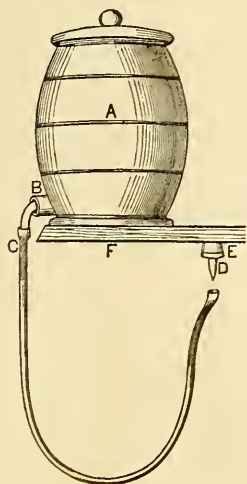
"WESTCHESTER, PA."

Many thanks to Mr. Garrett. We know he has many such little "dodges" in economics, and hope to hear his voice again.

For the following, we are indebted to our friend, Mr. J. W. Osborne. We saw the arrangement in use in several places in his establishment, during our visit there, and found it to work capitally. We all know the value of distilled water, whether we use it or not; and if we do use it, we often have to do so sparingly, for it is not to be had sometimes when we want it the worst. Now, to enable us to do this, to have it where we can conveniently get at it, and to use it just as we want it, the following will be found a good plan, as illustrated by the cut.

A is an ordinary stone ice-cooler, sitting on the shelf F in any convenient place in

the dark-room or elsewhere; overhead, for instance, out of the way. The outlet B is stopped up with a cork, with a piece of



bent glass or metal tube through the centre. Over this tube, one end of a piece of one-quarter inch rubber-hose C of the desired length is stretched, to carry the water wherever desired. The water is guided by holding the hose in the hand, and stopped by a pinch of the thumb and finger. When not in use, the lower end of the hose is stretched over the piece of glass-tube D, which has been heated, drawn to a point, and inserted in the second cork E, which is fastened under the shelf F, or at any other convenient place. Bore a hole in the shelf for the cork E to fit in.

It will be seen that when about to use the water, the hose should be pinched tight, withdrawn from the point D, and the end guided to the spot where the water is needed. The same arrangement may be used for other purposes also. To make the cork staunch in any such vessel, first fit it quite tight, and then dip it in hot paraffine; then heat the opening for the cork, and press it in, and when cool, it will be water-tight. For this hint, we are also indebted to Mr. Osborne.

In our last issue, our New York correspondent described Mr. Osborne's printing-frames. We have seen a number of them varying from whole-plate to 18 × 22 inches in size. The latter was used with nine cross-

bars and three pieces of thick rubber tubing, one inch in diameter, making 27 places where pressure was applied, equal, in the aggregate, to 1000 pounds. When not in use, the tubing should be removed from the frame to keep them in shape.

Mr. B. N. Poor, Franklin, N. H., raises his voice to know if any one can tell him what to substitute for cyanide for fixing ferrotypes. If he will use his cyanide solution in a vertical bath-holder, and keep a cover over it, he will avoid the fumes, and also keep his fingers free from it in a much greater degree than we think he now does.

"Asbury" makes several queries which may be inferred from the following answers:

1. The "swing-back" and the "swing-front" camera-boxes are equally durable, and work equally well. The former is rather the most convenient to use.

2. A large negative made with a large lens, and printed by contact, is preferable to a small negative made with a small lens, and printed in the solar camera, the lenses being equally good.

3. In using the vertical sliding-front, if you raise or lower the lens, all the parts of the plate will be equally as sharp *to the extent of the field of the lens*, as if the lens were in the centre of the front, but you cannot stretch the field of your lens. If it just covers your plate, and you raise the front to get more sky, you must of course lose in the foreground, and *vice versa*.

4. You can print a solar print from one end of a stereoscopic negative, just as perfectly as from a "single negative taken with a single lens from the centre of the box, the negatives being equally good."

5. The side-swing movement cannot be used in making stereoscopic views.

6. You must examine and be yourself the judge of whose apparatus is best for *you* to use. We always feel safe in recommending that made by the American Optical Co., for we believe it is first-class and reliable.

MR. P. B. JONES, Davenport, Iowa, has sent us a communication which is almost too expressive for our modesty to publish. We extract some of the *mildest* of it, and must beg him to excuse us for not publish-

ing it all. We have no doubt of his sincerity, however, and thank him for his encouragement. We get frequent letters like his, and fear sometimes that we are unworthy of them. Our chief desire is, to *do good* to those who are our readers. If we accomplish that, we are content. Mr. Jones writes: "Will you allow me a place in your, or, I should say, *our* valuable journal, to express my thanks to you for furnishing the craft with such a journal as the *Philadelphia Photographer*, and to say a word in praise of the most exquisite specimens of photography that are sent us therewith. Oh! how my soul goes out in wonder at the perfection obtained in our most beautiful art. I have never before written a word for publication in any journal, but, as I have taken the *Photographer* for two years and more, and have never seen a word of praise from any of the craftsmen for your beautiful specimens, or even a word of criticism, I thought I must try my skill.

"I think the picture in *our* last number is the finest thing I ever saw, and better than any I ever hoped to see. We Western men have not the chance to see as much as you do, and are therefore not as competent to judge, but I have not been in the business ten years without knowing how to appreciate good work when I see it. Why, my dear sir, I sit and look at these cabinet portraits in the *Photographer* until I lose myself in insignificance, and see myself sink into utter nothingness. Many thanks to you, Mr. Keeler and Mr. Fennemore. I think you have surpassed anything that has appeared in the *Photographer*, though I thought the others were beautiful and as good as could be. The alabaster paper is a perfect success, and just the thing that has been wanted. I must close, for I have not the capacity to do the subject justice. Good bye, Journal, until I see you in June again."

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### PARIS CORRESPONDENCE.

*Paris International Exhibition—The Arrangements—The Jury—The American Pictures and Lenses—Germany—Grune's New Invention.*

DEAR SIR: In my last letter I spoke about the preparations for the International Exhi-

bition in general; now, that these are nearly finished, I can speak of the impression the Exhibition has made upon me; however, everything is not finished yet. Here and there we meet with some unpacked boxes, and everywhere the numbers giving the names of the exhibitors are wanting. This causes considerable inconvenience. I hope you will not be angry with me when I tell you candidly that your countrymen were about the last to get ready with their part of the exhibition. They can use for their excuse the words of Schiller:

"Spät kommt ihr doch ihr kommt  
Der lange Weg entschuldigt euer Säumen."

This has been the opinion of the jury also, as they called three or four times on the American department. While speaking of the jury, I cannot help remarking that they waited in vain for the arrival of the American juror, Mr. Adams. He has not arrived, and even if he should arrive now, he would be too late, as their investigations are ended, and in a few weeks they will publish the result of their labor.

The jury consists of the following members:

Mr. Niepce de St. Victor and Count Aguado, France; Dr. Diamond, England; Mr. Melingo, Austria; and myself, for Germany.

It was no small job for this corporation to examine the productions of the 600 photographic exhibitors, and to give their judgment. That justice has been done in every case, I do not venture to say, but I almost fear that many objections will be raised. Curious is the strange request of the Imperial commissioners, to arrange all the photographic exhibitors in succession, according to their merits. It is evident that among the 600, there are many whose productions are of equal value. Who shall be placed first on the list, or who last, or how shall we distinguish, *according to their merits*, between the exhibitor of a photograph of a glass-bath, or a bottle of nitrate of silver? If the Imperial commissioners, for want of medals, should erase from the end of the list the names that are in excess of the medals, they will do many a one a gross injustice.

You desire, no doubt, to know how your



country is represented in the Exhibition. The Americans do not seem to take much interest in these matters, and we must therefore not be surprised that the space which they occupy in this Exhibition does not stand in any proportion to the size and population of the United States. This refers also to photography. The catalogue mentions the names of 19 American exhibitors, but I have not been able to discover one-half that number. Perhaps the specimens have not arrived yet. Amongst the objects, the moon of Dr. L. M. Rutherford and his spectrum, meet with general approval; it is perhaps the most interesting contribution from America, and excites the greatest interest, particularly as there is nothing similar to it here. I saw both of these interesting objects at the Berlin Exhibitions, where Professor Joy had taken them, and it afforded me especial pleasure to discover them here in an out of the way place, and to call the attention of the jury to them. The value of Rutherford's photograph of the lines of the spectrum will be appreciated by any one who has occupied himself with spectral analysis. No less interesting to the astronomer are the splendid photographs of the moon. Professor Schmidt, Athens, published some time ago, a long paper on the disappearance of one of the craters of the moon; this crater is delineated on Lohrmann's Map of the Moon, published as late as 1830. If Lohrmann was mistaken, it cannot be determined now. If we had a photograph of the moon made in 1830, the question could easily be settled.

But the general public care little about the moon, and enjoy more by far the fine landscapes of Watkins, of California. He has exhibited a number of large pictures of the grand mountains and the gigantic vegetation of America.

America is still to us a new world, and anything which gives us such a true representation as a photograph, is sure to be looked upon with wondering eyes.

Under these circumstances, the photographs of Gardner, in Washington, cannot fail to be looked upon with interest. He gives the portraits of a number of American celebrities, as well as views of Washington City; the latter appear to have been taken

with the Zentmayer lens, which I regret is not exhibited. The effect of the views is impaired by the heavy black clouds, and the portraits are too monotonous in position. The position with the arm on the back of the chair is too often repeated.

Draper & Husted, Philadelphia, have sent some enlargements marked "untouched." My opinion about untouched pictures I gave you in my April letter.

Williamson, in New York, has also tried himself on enlargements, but with no more success; some of them, however, are well colored.

The large portrait photographs of Mr. Gutekunst, of Philadelphia, appear to more advantage; one of them, a praying nun, is really very fine; the artist should, however, by means of the illumination, give more force to the head, and keep other parts more subdued; also a handsome background arrangement would be desirable; such large figures, with a plain background, are apt to appear monotonous.

The stereos of Bierstadt deserve special acknowledgment as regards their appearance and elegance; in execution they are the finest productions that I have seen in the stereoscopic line.

It was interesting to me to find the American opticians, Willard & Co., represented; they have exhibited a number of portrait lenses which surprised us by the original and practical arrangements of the stops; in place of the heavy brass stop they have taken bone or ebony, and the change in the size of the stops is simply effected by the turning of a screw. I regret that I cannot say anything about the working of these lenses. I have heard much praise of this firm, and should have liked to have examined their instruments practically.

By a resolution of the jury, the new wide-angle lenses only will be tested. Portrait combinations are excluded, and your countrymen are unfortunately debarred from demonstrating to a European public the excellence of their lenses.

I have given you a brief sketch of how your country is represented in the Exhibition. I now return to my own country, to lay before your readers the novelties and things of interest it has contributed.

I will begin with an invention which will open to photography a new field of industry, and which is not only interesting to the photographer, but also to the manufacturers of glass and porcelain. You are aware how many thousand articles of glass or porcelain are ornamented with gold or silver devices; in every household you find some of them. These decorations have to be drawn by hand, or they are printed on paper by means of a lithographic process, and this is transferred to porcelain; the latter process, however, is only applicable to flat surfaces; requires a draughtsman who paints the devices on stone, a large amount of gold, and is not applicable to glass surfaces. Now, Wilhelm Grune, in Berlin, makes these decorations by photography. He takes any drawing, for instance an embroidery pattern, a printed border, or a piece of lace, makes a negative of it, and from this, a positive according to the size of the object to be ornamented; he then changes the silver positive into a gold picture, and transfers the elastic collodion with the gold picture to glass or porcelain, and burns it in. The consumption of gold is ten times less than by the old process. If we consider how much finer a photograph is than a lithograph, we will understand how much more elegant and charming these decorations appear when compared with the old ones. It must be added, that Mr. Grune has simplified the process of making these positives so much, that they can be manufactured on the largest scale. The simplicity of the process surprised me, and it is curious to see how the thin collodion film with the picture, attaches itself to any round surface. I hope soon to be able to send you a sample of this curious process.

Yours, &c.,

DR. H. VOGEL.

PARIS, April 28, 1867.

### EAST FLORIDA AND PHOTOGRAPHY.

BY REV. H. J. MORTON, D.D.

FLORIDA, the land of flowers, ought also to be the land of the photographers. The scenery is novel, varied, and beautiful, affording fine subjects for the artist, while

thousands of visitors from the North pass their winter months along the banks of the St. John's River or in St. Augustine, and would gladly carry away with them mementos of their sojourn, in the shape of good pictures. But they find this impossible. Few scenes, in these regions, have been photographed, and these few, as far as we have been able to judge, are badly chosen and worse executed.

The advantages of climate enjoyed by Florida, must make it more and more the resort of invalids and even of the well, who wish to escape the severities and discomforts of a northern winter and spring, and we know of no more promising field for a skilful photographer than that presented by this fair region of country. His range of subjects would be extensive, and a rapid sale would be found for all well-selected and well-executed pictures.

As this paper may fall into the hands of some persons meditating a retreat from the severities of the next winter season, as well as be glanced at by others disposed to consider his suggestions in regard to photography, the writer will offer a few hints concerning the mode of reaching prominent points in Florida, give his own observations with regard to its climate, and name some of the subjects which seem to him most appropriate for photographic experiments.

Both from New York and Philadelphia, fine steamers start for Charleston and Savannah every week. The passage is made in about seventy hours. Every attention is paid to the comfort of passengers, and the voyage is not long enough to become very tedious. To those who prefer a land route, there are railroads down to Savannah, and, indeed, to Jacksonville on the St. John's. But those who have tried this route do not speak encouragingly as regards its comforts. We will suppose the traveller wishing to see Charleston on his way to Florida, and therefore taking one of the several fine steamers which ply between that port and the North.

Arriving at Charleston, he will find several steamers which run between that place and Savannah—some by what is called the inside and the "Dictator" by the outside passage. The inside passage we consider

a "snare and delusion," as it is *inside* only a part of the way, and takes the traveller out to sea for many hours, in boats not intended for such navigation, and likely, we fear, some day to demonstrate their unfitness by a serious catastrophe. They are mere river boats, without anything but their machinery to depend on, and one is startled when thinking of the result of any accident to shaft or cylinder, especially if a strong wind and heavy sea should happen to follow or attend the breakage. The Dictator goes avowedly out to sea, but she is a large and staunch boat, and, though not exactly what we should like, far more reliable than any of her rivals. Arriving at Savannah direct, or from Charleston by the Dictator, the traveller will find the same vessel ready, in a few hours, to go on to Fernandina and Jacksonville, and so up the St. John's to Pilatka. From Savannah, however, he has the option of another inside passage, concerning which, we have the same remarks to make as were offered in reference to the inside route just referred to—it is a snare and delusion. Our inside passage from Savannah to Jacksonville took us far more out upon the broad ocean than we cared to go in such a craft as that in which we voyaged, and nothing but fine weather and a quiet sea justified the journey.

The entrance to the St. John's River is very picturesque and impressive. You pass across the bar amid combing breakers, and see a wild sandy coast ahead, crowned with dark green bushes and tall palmettos, while countless sea-gulls wheel and scream overhead, and ducks whirr, and snipe flit away in flocks, and long lines of white pelicans sit solemnly along the shore, or fish with varying success among the crested waves. What with the noise of the breakers and the clanging of the sea-fowl, and the flash and flutter of both, the scene is very animated and exciting.

Crossing the bar and running up the river, you soon reach Jacksonville, and find it a thriving town fast recovering from the effects of the war. Very extensive fortifications defend the rear of the place, but happily they are fast falling to decay, and grass and shrubs are climbing over and covering the ugly mounds made for the accommodation

of cannon. The wharves were swarming with blacks, full of fun and frolic, but working with a will in loading and unloading freight, and apparently very respectful and submissive. We should judge Jacksonville to be rather a hot residence even in winter, being very sandy and destitute of shade. Few resort to it, however, except for purposes of business.

After leaving Jacksonville, the St. John's River presents a grand but monotonous spectacle. Endless lines of forests, rarely broken by any cultivation or human habitation, stretch along on either side, until you pass Pilatka, then a strange change begins to be realized. The stream narrows—almost closes. The steamer (the Darlington takes the traveller on to the high reaches of the river), now rushes, as it were, right into the woods. The branches of the trees sweep the wheel-boxes on either side. And what trees! Majestic groves of palmettos and palms, gigantic live oaks draped with long festoons of gray moss. Other noble trees overflowed by rolling torrents of yellow jessamine, and alive with noisy flocks of painted paroquets. Deer, singly or in herds, are seen starting away from the river banks, or, trooping across some open glade in the forests, wild turkeys rise and run swiftly away, sometimes within short range of the sportsman standing on the deck with his ready rifle, and, should his aim be accurate, and the bird fall, the accommodating captain of the steamer will stop the vessel and send ashore for the game. Time is of no account down in this part of the world. What does it matter whether you are an hour or a day later or sooner at a place than the time specified. The trip is one of pleasure rather than of business, and even when connections are to be made between steamers and stages, and railroads and river lines, as nobody is in a hurry, every body waits, and the *connections are made*. In traversing the sandy pine region which lies between St. Augustine and Picolata, we were two or three hours behind time, owing to a series of mishaps, but the good old steamer Dictator was found patiently awaiting our arrival, slowly puffing out her thick breath and simmering with her steam, like a huge black cat, peacefully purring and quite content to



tarry. So the sportsman may assure himself of plenty of game on the upper waters of the St. John's, plenty of time to recover it (if he is fortunate enough to kill it), and a good cook on the steamer to prepare it for the table. But deer and turkey are not his only prey. To say nothing of ducks and snipe, which are abundant, he has the choice of any number of huge alligators, on which to exercise his skill. They lie like logs, basking on the shore or floating along the stream, and, to shoot them, seems one of the established rules of the river. We will not trust ourselves to tell how many of these monsters a worthy friend of ours has killed on his frequent passages up to Enterprise. But we ceased to deplore their deaths, after hearing of the havoc they make among the animals which venture down to the water to drink, or attempt to swim across the river to fresh feeding-grounds. We were fortunate in securing a photograph likeness of one of these monsters, taken while the beast was still alive (how, we leave our readers to guess), and have it still in possession. It is a most unsightly animal, and the more so, because the huge mouth has all the appearance of wearing a satisfied smile, as if the creature had just swallowed an innocent fawn or unfortunate pointer, and was rather pleased with the flavor of the morsel. The photograph was taken while we were in Florida, but we have lost the name of the artist, which, however, is the less to be regretted, as the photograph is a very poor one.

Besides deer, and turkey, and alligators, the shores of the St. John's have quite a show of cattle, almost as wild, which offer fresh points of light and additional ornaments to the landscape. They are all owned and marked, but wander about at will, and thus some persons possess herds which, when needed, have to be sought for fifteen, or, it may be, fifty miles away. So, at least, we were told by those familiar with the "manners and customs of the natives."

The steamer (we will suppose), is pushing her way along the narrow stream, over-arched and hemmed in by luxuriant woods, these full of varied life, and, at every yard, affording striking and fresh subjects for the photographer. Suddenly she glides out of

this green and golden maze, and sweeps forth upon a wide and beautiful lake. In a moment she is in the midst of a vast unbroken mirror, set in a variegated frame, richly carved and gorgeously colored. There seems to be no outlet. The end of the voyage is reached. The steamer, if she proceed, is going to thrust herself up among the trees, and take a quiet sleep with the alligators on the bank. But no! another narrow passage discloses itself, and again the boat threads her way among swaying boughs and overhanging branches, until she bursts out into another beautiful and broad sheet of water miles wide, and with shores mottled with endless varieties of verdure and ever changing colors, from flowery vines and climbing creepers.

Photography has accomplished the wonderful feat of recording *sounds*; can it catch that grand and solemn echo which now runs tremblingly through the woods, and glides across the silent lake? It is the dull heavy crash of some gigantic tree falling far away in the forest, and filling the heart of the hearer with strange fancies! Or that liquid stream of music which comes thrilling through their green leaves in seeming unison with their soft tremulous motion! It is the song of the mocking-bird, who finds a perch on every branch, and appears to be singing in the very ecstasy of joyous liberty. All is rest, and yet all is life, and the traveller reaches Enterprise, the end of his trip, with regret. Sometimes the boat is chartered to go up to Lake Harney and the higher waters of the St. John's, and here the scenery is described as being still more picturesque, and likely to recompense the photographer with still more striking subjects for his art. But he will load his boxes with negatives long before he has reached Enterprise, and find that the difficulty is not in discovering, but only in selecting scenes to be transferred to his prepared plates.

Enterprise, like Hibernia, Green Cove Springs, and Magnolia, is not a town nor village, nor even a hamlet, but simply a house built for the accommodation of invalids who seek health in a mild climate, or visitors who are in search of pleasure and the picturesque in this genial region. A

most delightful exchange they will one and all experience on arriving at any of these places from the North. Entire freedom from frost, and snow, and ice, with a clear sky overhead during most of the winter season—rainy and rough days the exceptions to the ordinary experience—a fine river for boating and fishing, and some small space for walking, these are the main attractions. At Green Cove, medicinal springs (sulphur, I believe), are spoken of by some visitors very favorably. But the charm of these places lies in the climate, and the quiet to be there enjoyed;—in the beautiful scenery visible on every side; in the wide and varied field afforded to the naturalist and sportsman, and in the easy access and ready means of shifting quarters, afforded by the boats which ply on the river. There are five of these passing up and down each week, thus leaving only two days vacant.

But further remarks must be reserved for a future number of the *Photographer*.

### THE ZENTMAYER LENS CONTROVERSY.

SINCE the *début* of the Zentmayer lens, there has been considerable discussion and speculation concerning it, more particularly as to whether a combination composed, as the Zentmayer lens is, of two simple crown glasses, could be achromatic even to the extent of having its chemical and visual foci falling on the same plane. That it does possess this advantage, we have no doubt, and this fact has exploded many of the ancient fortified theories, and made some of the others totter considerably. All sorts of things have been written, but a paper published in the April 18th issue of the *British Journal*, is a little the most astonishing yet, and we publish it as follows:

#### "THE ACHROMATISM OF SIMPLE LENSES.

"So much the worse for theory," our American brethren will probably say, when we reiterate a statement we long ago made, to the effect that theory being against the achromatization of the Zentmayer lens, we could not and would not accept the statement that it—a combination composed of two simple crown glass lenses—was achro-

matic, even to the extent of having its chemical and visual foci falling on the same plane.

"In the absence of a lens of the kind in question, from which, by actual experiment, to arrive at a definite conclusion, it is evident that we must receive with due deference the expressed opinions of those more favorably situated in this respect. These opinions have been somewhat conflicting; for, although from one source we learned that our surmises relative to the lens not being achromatic was quite correct, the counter statements predominate. The decision is one which, we think, could not be attended with much trouble or difficulty, and yet, from the various remarks on the subject, which we glean from journals, we find that some uncertainty does seem to prevail.

"In our last number, our respected Philadelphia correspondent, Mr. M. Carey Lea, speaks on this subject in no uncertain manner. He has tried the lens, and is warranted from that trial in pronouncing affirmatively upon the coincidence of the visual and chemical foci, adding: 'The speculations, therefore, of those who have affirmed in your columns that such a thing was impossible amount to nothing.'

"Here, therefore, are two assertions, both of the most unmistakable and contradictory nature. Mr. Lea, on the one hand, affirms, after an actual examination of the lens, that it is achromatic; and we, who have never seen it, and only know of its parts and properties from Philadelphia correspondents, affirm almost as positively that it is not so. Can both be right? Can these conflicting statements be reconciled? We believe that the discrepancies in opinion referred to are capable of explanation.

"The Zentmayer lens, let us observe, is a doublet, composed, not as are those manufactured in Europe or New York, of *achromatic* lenses, but of two simple lenses of crown glass, and for this combination it is claimed that the visual and chemical foci coincide. Now, as we have asserted that in a combination of this kind these foci must differ to the extent of about a thirtieth part of the general focal length, it is necessary that in the interests of photo-

graphic optics we should probe the matter to its foundation.

"Each of Zentmayer's lenses, says Mr. M. Carey Lea, is furnished with three stops—the largest for obtaining the focus, the second for operating with, leaving the last 'only for exceptional use.' Here, then, we have two facts to start with, which, in the minds of our advanced students in photographic optics, will have already conduced to a solution of the difficulty.

"A large stop is employed for focussing, one of a much smaller size being used in taking the picture. Now the first thought which obtrudes itself, is this: What a singularly small stop must be employed in the Zentmayer lens, seeing that it does not admit so much light as is desirable, if not necessary, by which to focus!—a thought immediately followed by that so well expressed in a paper by Mr. Grubb, which we published last week, in which he showed the flatness of effect, and want of artistic rendering, which resulted from the use of extremely small stops. With a very small aperture we have obtained a picture passably well defined, in a pictorial point of view, without any lens whatever; while with an increased aperture we have secured, by the aid of a common spectacle glass, very good definition. Depth of focus, coupled with good definition, may be obtained with any kind of lens, either single or achromatic, provided a sufficiently small stop be employed.

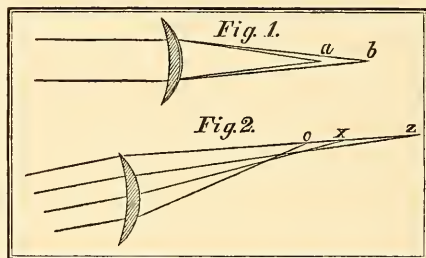
"When, as in the Zentmayer lens, a larger stop must be used for obtaining the focus, than that similarly employed for the exposure, the two foci, under these altered circumstances, will not prove of the same length.

"The following diagrams illustrate the principle of the alteration of the focus by a corresponding alteration of diaphragm.

"In Fig. 1, *a* represents the focus of the chemical group of rays, *b* that of the visual. When *b* is received on the ground glass of the camera the picture is visually sharp, although it would appear quite out of focus in a photograph, because the focus *a* is that of photographic sharpness. If, however, the apex *a* could be substituted for *b* on the ground glass plane, between the operations

of focussing and taking the picture, then the conditions of sharpness would be secured.

"We shall now see how Mr. Zentmayer manages to effect this change, and to aid in



doing so we call attention to Fig. 2, in which we represent the passage of oblique rays.

"In this the passage of rays through the lens is, as in Fig. 1, somewhat exaggerated, in order the more easily to demonstrate the principle. With a wide stop the mean focus is situated between *o* and *z*; with a still smaller stop, which would cut off those rays now falling on the centre of the lens, the mean focus would be prolonged, and would fall between *x* and *z*. Now, as the chemical or actinic focus of lenses of the Zentmayer or Steinheil class is approximately one-thirtieth of the general focus nearer to the lens than the visual focus, it naturally follows, that if the visual focus, when obtained, as Mr. Zentmayer directs, with the large stop, fall midway\* between *o* and *z*, or at *x*, on which plane the image is received on the ground glass, the insertion of the small stop with which the photographic operations must be conducted, will lengthen the whole group of rays to *z*, which will thus prove the sharpest visual point, leaving the ground glass or the sensitive plate a considerable distance nearer to the lens than this visible focus—in other words, it will now be approximately situated in the chemical focus of the lens.

"From this it will be seen that while, as asserted by Mr. Carey Lea, the chemical and visual foci—especially of the oblique pencils—really appear to correspond, when used as directed by the maker of the lens, the absolute truth of our statement, that

\* This term is, of course, not used absolutely.



the lens is not achromatic, remains intact. It is with no intention of instituting invidious comparisons between our own opticians and those of America, that we state that we do not believe one will be found here who will assent to the proposition, that the coincidence of the visual and chemical foci can be secured otherwise than by the recognized means introduced by Dolland, viz., the employment of at least two kinds of glass, in which the angle of dispersion differs from that of refraction.

"We may add, that when *extremely* small stops are employed, a sharp picture may often be obtained, even when the plane of photographic delineation is removed to a considerable distance from the plane of actual focus. Every practical photographer knows the ease with which he can secure the right point of sharpness, when employing a large stop, compared with the difficulty of obtaining the 'exact point' of definition, when a stop of comparatively a pin-hole aperture is employed. This, without doubt, is an element in the sharpness obtained by Zentmayer's lens. All who use achromatic lenses, and we presume this embraces most, if not all, of our readers, should bear in mind the importance of focussing, in as far as they possibly can, with the same stop they intend using in the production of the picture, because, when the best lenses are used, any alteration of aperture is attended with an alteration of focal length."

The author of the above, whom we suppose is Mr. George Dawson, Editor *British Journal*, seems to have exceeded himself, and has quite overwhelmed us by his strange assertions.

We were about to reply to him, when we found Prof. Morton had prepared himself to do so, and we give the subject into his abler hands. His letter will be read with great interest.

*To the Editor of The British Journal of Photography.*

MY DEAR SIR: On reading the above notice, I did say, "So much the worse for (*your*) theory," or for any theory which is at variance with fact. And without disrespect to English opticians, but because I believe them to be as well informed and in-

genious, if not quite so originally inventive as those of this country, I say that not one will be found who will not assent to the above proposition. In the present case, however, one point of distinction must be carefully noted. The question at issue, is between *your* theory and our facts, not between the received laws of optics and the same entities.

As regards these laws and the general theory of optics, we regard them as more ours than yours, for, by their application, we have *constructed* an apparatus *producing* effects which you cannot even apprehend as possible. We respectfully submit, that the man who makes the gun that shoots the bird, has more claim to the theory of mechanics, than he who argues, against fact, that the aforesaid gun cannot shoot at all.

As the discussion at present is based upon two systems of assertion, it is of great moment that these assertions should be clearly stated at the start. What is more, each party should be allowed to stand on the ground which they have themselves selected, and not be represented as maintaining opinions the very reverse of those which they have very fully expressed. In this relation, I have had a "crow to pick" with you, ever since your notice in your number for October 12th, p. 485, of my report on the Zentmayer lens.

You there represent me as maintaining, that in theory these lenses are "correct," and ignore my testimony as to their practical achromaticity.

Now, my words, taken from your own Journal, August 17th, p. 390, are as follows:

"The *aberration, spherical and chromatic*, may therefore be regarded as that only which is due to two such extremely minute lenses. . . . The converging ray . . . is only subject to the *aberration* due to the two small lenses, now of unequal curve. . . . Thus far, the principle by which a lens of *very small aberration*," &c.

In the face of this, to be cited as holding that the above lens was one in which absolute coincidence of the chemical and visual foci was claimed, is mildly aggravating. Nor was it less so, after having made the statement, "In these lenses, the visual and actinic foci appear to coincide, so that no

adjustment after focussing is needed," to read the cool statement, "We fear that the Zentmayer lens will not force its way into favor with photographers in this country, in consequence of the favor so generally shown by them for lenses in which the visual and chemical foci coincide."

I do not mean to accuse you of the discourtesy of doubting my word, but only of haste or forgetfulness in overlooking what I most distinctly said. But such mistakes when made the basis of adverse criticism, look too much like some of the "sharp practice" common in newspaper polemics, to redound to the credit of a scientific writer.

To return to our immediate subject, it will be seen that the ground taken by me at first, was that without any *theoretically absolute* correction, the error or want of coincidence in visual and chemical foci, is in the Zentmayer lens reduced to a quantity practically inappreciable. That not only is no adjustment of the camera between focussing and exposing required, but that any shifting of the plate, either back or forward of the plane of best visible definition, hurts the picture taken on the film.

This is exactly the ground which I now hold, and which has been held by every one who, to our knowledge, has written on the subject from this country. The contradictory opinions alluded to very indefinitely in your article above, are beyond the range of our reading. Any hasty expressions as to perfect correction, which may have been used, are fully warranted by common practice, and by such authority as Brewster, whose "Achromatic Eye-piece," must be a sad thorn among those roses of "European *savants*, who class among the impossibilities, refraction without dispersion through a homogeneous body," since he there describes exactly what you declare theoretically and practically impossible, *i. e.*, a corrected lens of one kind of glass. Now please do not overwhelm me with reproach because of the discord between "refraction without dispersion," &c., and any *correction* whatever. The latter, you say, has no business in this place. Granted. But then, exactly for the same reason, the former was out of place where first introduced by you. The question being not as to a new kind of glass, but

a new combination of curves. Demolish us here then, if you please, but remember that you take off your own head by the same blow.

So far for our assertion; yours, to which I will try to do every justice, is, as I understand, about this:

1st. That according to optical laws, the chemical and visual foci in a lens such as Zentmayer's is described to be, must be separated by about  $\frac{1}{30}$ th of the average focus.

2d. That pretty strong testimony being on hand, that no such difference is perceived, the discrepancy is to be explained by reference to some adventitious circumstances, such as smallness of stops, change of the same, &c.

If this is not a fair statement of your ground, I can only say I have not failed through intention or lack of care.

To consider the first proposition: A single bi-convex lens of crown-glass having equal curves, say of 12 in. radius each, will give us a difference in its foci for visual and chemical rays of about  $\frac{1}{33}$ d, or say even  $\frac{1}{30}$ th of the visual focus.

This, of course, any one may easily calculate, and prove by reference to the simplest optical laws. But something which it is by no means so easy to prove, and which is certainly not in accordance with any of the laws of optics, is that a compound lens made of two deep meniscus glasses, so united as in the Zentmayer combination, is as badly off in chromatic eccentricity as a simple double convex lens of equivalent focus.

We know, on the contrary, that for a given focal length we diminish this sort of error in proportion as we increase the number of surfaces employed, provided of course, that these are judiciously placed.

To discuss, mathematically, the exact amount and degree of correction, which is developed in the present case by the special form and construction of the lens, is a problem worthy of the ablest mathematical students of the age. I have lately heard a curious anecdote illustrating this. A gentleman of this city wrote to Fraunhofer requesting him to furnish a telescope for one of our public institutions, and enumerated the various theoretical merits which, according to general optical calculations, such

an instrument should possess. The answer of this most eminent of optical students and constructors, was briefly this: that it was quite beyond the reach of his art to work out such an instrument. He did not of course mean, that he could not calculate and construct a good or an excellent telescope, but simply that it was in his view (understanding the difficulties), impossible to follow out all the theoretical considerations, which, to a superficial observer, might seem the essential conditions of the combination.

You allude, yourself, to the fact that in the most excellently corrected lenses now known, a change of stop between focussing and exposure, will impair the sharpness of the picture. In other words, you imply that these corrected lenses have not absolutely coincident foci for the two kinds of rays, but that the introduction of more or of fewer marginal rays, so changes this relation of these points, that what is the best chemical focus in one case, is not the best in another. I will not here allude to the damaging evidence which you thus bear as to the *perfect correction* of these *corrected* lenses, but would simply ask you, if you would for a moment dream of undertaking to calculate and express, mathematically, the amount of this displacement of focus effected by the change of stop?

I feel very sure that if you really appreciate the problem, you would without hesitation decline it, or if not, I am yet more confident that you would not much enlighten the world by your attempt at its solution. A fact which illustrates the difficulty, and we may say, danger of these calculations, where so many and such complicated conditions are involved, is the following: that famous optician, Ross, when he had calculated and constructed a lens for the microscope of  $\frac{1}{12}$ th inch focus with an aperture as high as  $135^\circ$ , said that, "this was the largest pencil which could be passed through a microscopic object-glass."

But shortly after, Toles and Spencer furnished lenses of equal focus, and with angles of  $172^\circ$ .

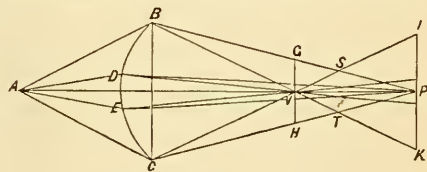
I do not say here, "So much the worse for theory." Theory has done her best, and failing, has failed honorably. She could but include in her calculations some of the con-

ditions of the problem, and eliminate their result. Others, were beyond her reach. But when we get a *practical result*, then nature, who is our calculator, omits nothing; no condition, no influence, is overlooked, and the conclusion so reached, must be *infallible*. If, under these conditions, theory, with her conclusion founded upon partial knowledge and a limited analysis, opposes the same to the irresistible verity, then we say, and most justly, so much the worse for theory.

Without then exhibiting this temerity of plunging into a vortex of complicated calculations, which at best promises but a possibility of accurate result, I have at least shown that your first proposition is utterly untenable.

So much for the theoretical accuracy of your statement. Before leaving this part of the subject, however, I wish to point out that even theoretically, the want of coincidence in foci of different colors or kinds of rays, is no measure of the practical accuracy of a lens, in producing to the eye, or on the film a good image.

This subject has been already alluded to, by Mr. Coleman Sellers, in his answer to "Argus;" but, as I think it will repay a fuller investigation than was necessary in that case, I will venture a few more words:



Let A represent some point in an object, and B C, a lens with great chromatic, but no spherical aberration. Let V and P represent the points to which all chemical and all visual rays might be assumed respectively to be focalized. The distance between these points, and therefore the nominal error of the lens, would be the same whether the entire lens were employed, or only the small part D E. But the evil effects produced by this want of coincidence in the foci would be very different. With the entire aperture, this error would distribute the rays from A over the space G, H, T, K, I, S, while, with the small portion D E only uncovered, the



dispersion would be confined within the narrow limits indicated by the lines D P, E P, and D V, E V produced.

We thus see that a small stop, enormously reduces the practical effects of want of correction upon the picture, while an increase of distance between the foci of various rays would produce but little effect comparatively, with a small stop and long focus.

Thus Steinheil admits an error and need of adjustment in his lens (according to his patent) of  $\frac{1}{37}$  of the focal length, yet a negative taken with his lens without adjustment which I have just been examining, is fully as good as the average of those taken with the ordinary corrected lenses, of large aperture.

Having thus indicated the way in which a small stop may help the practical correction of chromatic aberration, I will pass to the second part of your assertion, namely, that the good working of this lens is due not to corrections effected in the combination itself, whereby foci V and P are brought near together, but only by the change and smallness of the stops.

The explanation which you have given in your editorial of April 18th, is ingenious if not original. In substance it was fully stated by Mr. Sellers in his letter quoted above, where it was employed to explain the propriety of Mr. Zentmayer's use of different stops. As a means of improving the working of this lens, the change and its rationale, are all very well, but as a means of *producing* a good effect which would be absent without it, the explanation fails for the perhaps insignificant reason that it is opposed to the fact.

This lens does in fact take the most capital pictures without any change of stops between focussing and exposure. Thus the excellent picture alluded to, in the report of the Committee of the Photographic Society, as taken with the 12-inch Zentmayer lens (see this Journal, p. 151), was exposed and focussed with the *same stop*. This I know from those present, the matter being a subject of discussion at the time. Many practical photographers tell me that they habitually do the same thing. Theoretically we know that the plan recommended by the inventor is better and in *some cases* we can *perceive the difference*, but generally the

worst way is *so good*, that the improvement is imperceptible.

It is very unkind of these uncivil facts to spoil such a pretty and much elaborated theory as that which you have published; but what can you expect else? It has been the delight of facts from the beginning of time, to punch holes in the very nicest of theories, and shall we only escape?

Again, you conclude that, "a singularly small stop must be used in the Zentmayer lens." Let us see what fact says here. In the picture taken by the Committee already mentioned, the stop was .22 inch, or to the focal length as 1 : 54.54; that of the Globe used at the same time, and working with the *same exposure*, being .24 inch, or to its focal length as 1 : 53.92. Here we see that both in actual size, and in proportion to focal length, the stop of this lens differs but by a shade from that of the widely renowned and technically corrected Globe. The smallest stop of a Dallmeyer triplet, No. 2 (the only one with which it will perform work that can in any way be compared with that of Zentmayer's lens), is .21 inch, or  $\frac{1}{33}$  of f, and even with this it covers sharply less than  $\frac{1}{4}$  the surface given by a Zentmayer lens of the same focus.

I do not know the relations of stops in the Steinheil lenses,\* but from the time of exposure mentioned by their inventor, from  $1\frac{1}{2}$  to 6 minutes, they must be far less than those used in the Zentmayer lens, which works in a time varying from 15'' to 45'' with a good light.

I saw lately some excellent pictures taken with one of Zentmayer's lenses in which the stop was  $\frac{1}{16}$  of the focal length.

These facts do not bear out your conclusion that "a singularly small stop must be used in these lenses."

Such then is the unhappy fate of the theory, which despises the support, and merits the rebuke of facts.

As to the ultimate success of the Zentmayer lens, in a business light, in England as elsewhere, even you, I think, will feel little doubt, when you have seen its work. Even "Argus," I believe, will be convinced, notwithstanding those overwhelming "author-

\* See page 114, vol. iii, Phila. Photo.—Ed.

ities" which he "could have cited," but *didn't*, of the want of "a mathematical demonstration," and the shocking conduct of some inhabitant of North America (who, I am happy to say, is not *even known* to my friend Mr. Sellers or myself), who deceived him about the Steinheil lens.

Hoping that his and your next predictions may prove more fortunate,

I remain, yours, &c.,

HENRY MORTON.

### THE AMERICAN PHOTO-LITHOGRAPHIC COMPANY.

A LITTLE more than two and a half years ago, we announced the arrival, in this country, of Mr. John W. Osborne, the inventor of the photo-lithographic process which bears his name, and published the outlines of his process.

About a year ago, a company was formed for the purpose of pushing the process practically and commercially. Since then, Mr. Osborne, acting as the superintendent of the company, has been busily engaged erecting the proper buildings and glass-room, and in securing the extensive apparatus necessary to carry forward the great business awaiting his movements.

Some months ago, all things being in readiness, he began printing, and has, we are glad to know, been very much encouraged.

He promised us we should come and see him when he was quite ready, and a few days ago we enjoyed that privilege.

The printing-house is located at the corner of Third Avenue and Tenth Street, Brooklyn, L. I.

Having arrived there, we met a cordial welcome, and were cheerfully shown the practical workings of the process, which we will attempt to describe in as few words as we can, without being tedious.

The photo-lithographic only differs from the lithographic process in the manner in which the drawing is made upon the stone to be printed from. With the latter, our readers are all familiar, and the first step in the former is to place the drawing, engraving, or other original you desire to multi-

ply copies of, on your plan-board, and make a perfect negative of it in the usual way. The negative must, of course, be excellent in every particular, and free from distortion. A print is made from this on a sheet of positive paper, coated with a mixture of gelatine, bichromate of potash, and albumen. This is a very sensitive paper, and prints much more quickly than silvered albumen paper. Removed from the printing-frame, we have upon the paper a brown drawing upon the bright yellow sheet, which then receives an even coating of a peculiar lithographic ink, called transfer ink. This operation is known as "*blacking*" the positive print. The sheet of prepared paper with the photograph upon it has now to be made capable of parting with the superfluous ink upon its surface. For this purpose, moisture and heat are necessary, and both are applied by floating the copy, face up, upon a surface of boiling water, so long a time as the experience of the operator tells him is requisite. The next step is called "*washing off*." The print is laid, face up, on a piece of glass or other hard smooth surface, and friction with a wet sponge or other suitable substance is applied to the black coating under which the photographic image exists, and to develop which is now the object in view. This is proceeded with until all traces of ink are removed, save those required to form the picture. After "*washing off*" in this way, an abundance of hot water is poured over the print to wash away entirely all soluble matter, and it is then dried.

We now have a photograph in lithographic ink, identical in every respect with the original.

A fine lithographic stone is next procured, warmed slightly and put in the lithographic press; upon this the positive print is placed inverted, having first been dampened by lying between moist paper, and the whole is then passed repeatedly through the press. We now make examination, and find the paper has attached itself so firmly to the stone that considerable force is necessary to separate the two. When the paper is removed, it brings with it the albuminous surface, but the ink is gone; it has left the paper for the stone, and on the latter we

find a reversed drawing of the original, which, after the proper preparation, will print quite as well as a drawing made by hand. This will be easily understood when we tell you that the greasy ink having a great affinity for the substance of the stone, combines with it to form a lithographic drawing in the strictest sense of the word.

Thus, it will be seen Mr. Osborne makes *light* do the tedious work of the lithographic artist, as far as copying the original is concerned, saving immense labor. The stone is now ready for the printing, which is proceeded with in the usual way of lithographic printing.

Nothing can be more perfect than the prints thus obtained. Every line and figure, trace and blur, is faithfully reproduced, and the original enlarged or reduced at will.

Some of the specimens given us by Mr. Osborne are in every way equal to the originals, which we were allowed to compare them with. Indeed, if the originals and the proofs were mixed, it would defy our skill and detective powers to distinguish them. We cannot show our readers this, but Mr. Osborne is printing us copies from a beautiful little pen-sketch, a copy of which we shall, after a while, present to all of you.

Convenience, good order, and cleanliness seem to have been studied, and do prevail all over and through the establishment.

We cannot, in one paper, describe all that is interesting there. Mr. Osborne's camera was, to our mind, the most novel piece of apparatus, and we hope to describe it in our next issue, with drawings of it. His immense glass-room is also a fine affair, as is the whole establishment. Several presses are now being constantly worked, and a steam-press is being erected for experiment. Plenty of space is in reserve for the business to grow, as it surely will, for there is no end to the applications of this admirable process. To the artist who desires to reproduce his drawings, to the mechanic who wishes to duplicate his designs, and to the great public alike, it is a precious boon, and we are glad to see our good friend, Mr. Osborne, so successfully carrying out his plans after so much careful experiment, constant study, and hard labor. Our visit to the

American Photo-Lithographic Company's works was a pleasant one, and we hope to repeat it.

## MULTIPLYING MIRRORS IN PHOTOGRAPHY.

BY M. CAREY LEA.

THE last number of the *Photographer* contained a sketch of an ingenious apparatus for obtaining a large number of small heads with a single objective, and an announcement that the next number would contain an illustration of its working. The specimens produced even by the very simple apparatus so far tried, seem to indicate that this method of operating is likely to be extensively used. But to get really good work, the apparatus as shown to me, must be somewhat modified, and I propose here to show on what principles it must be constructed.

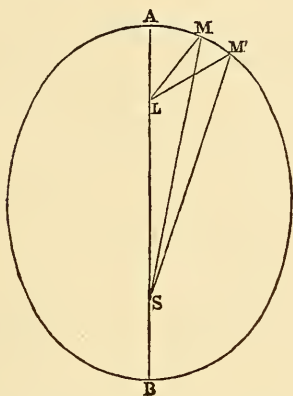
When the mirrors are placed as desired by the inventor, in regular rows, simply inclining them more or less, so as to throw their images upon the lens, they are liable to the defect that the images cannot be brought into absolute focus at once. Take the mirror nearest to the lens, and draw from it a line to the lens, and one to the sitter; add these together, and we have the effective distance of the sitter from the lens. Do this again with the more distant mirrors and it will be found that the sum of these lines is greater; therefore, for these images the effective distance of the sitter is greater, and a correct focus necessarily cannot be got for all at once.

It is nevertheless possible to effect this desirable object, and in the following manner:

Let  $S$  be the point at which the sitter is placed,  $L$  the lens of the camera, and  $M$   $M'$  the box of mirrors. Taking  $L$   $S$  as foci, describe an ellipse, such that its circumference will touch the spot at which the mirrors are to be placed. Now if the little mirrors are set, not in a straight line, but ranged in a curved one, corresponding with the part of the ellipse  $M$   $M'$ , then every mirror in the line, no matter how many, will be in good focus at once. As each little mirror turns on an axis, it will be easy to regulate



its inclination so that it may throw its reflection correctly.



It is the peculiar property of the ellipse, that if from any point in its circumference, lines be drawn to the foci, the sum of these two lines, termed radii rectores, will be equal for all points in the curve. This is clearly what is needed in the present case, viz., that the distance from the sitter to each little mirror, added to the distance from that mirror to the lens, should in each case be equal.

The above is sufficient for a single range of mirrors, side by side, but, as the invention contemplates several ranges, one above another, it is necessary to consider the relative positions of these ranges.

Suppose the ellipse to rotate on an axis passing through *L* and *S*, there will be formed an ellipsoid, every part of which will share the property of having the sum of its distances from *L* and *S* equal. Consequently, the surface to which the mirrors are attached should have that ellipsoidal form.

There could be no very serious difficulty in constructing a surface such as is here described. Let a nail be driven in a floor at a point corresponding with the intended position of the sitter, another at that of the lens. Fasten to each one end of a cord whose length is just the distance at which the camera ought to be from the sitter, and with a pencil, keeping the cord stretched, draw the part of the ellipse *M M'* on a piece of pasteboard. It is unnecessary to draw the whole ellipse, or any more than the part wanted.

This will give the curve of the central row. Each row above and below will be the same curve, but a little less receding. This will do approximately, and be a great improvement on a plane surface. If wanted exact, the pasteboard must be large enough to extend to the line *A L*, and after shaping to *M M'*, must be rotated round *A L* on an axis, to get the curved surface.

Other precautions will suggest themselves, such as either to use colorless and very thin glass, or metallic specula.

An advantage that this method will possess, is that the camera is moved away from the light, and, if the mirrors are good, very brilliant pictures ought to be got, although an increased exposure will be needed. Plane mirrors are used; it is not necessary that they should be concave.

One point of interest is that the figure shows that the box of mirrors must not be set, as might at first be supposed, inclined equally to the camera and the sitter, but almost square in front of the sitter. The exact position is shown in the figure. The reflector is brought up to the lens by turning each mirror on its pivot.\*

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## NEW YORK CORRESPONDENCE.

PHOTOGRAPHICALLY considered, one of the most important events of the past month, is the change made in the American Photographical Society. As a separate institution it can no longer be known. Its proper name for the future will be the *Photographic Section of the American Institute*. To the care of which all matters should be addressed. This change may be considered as unfortunate by some, therefore a short statement of one fact, and one reason, may not be out of place. One of the great troubles of dwellers in Gotham, is the item of rent. It was the great trouble with our Society. Its demands were so enormous that to meet its quarterly calls kept us poor, and denied us the benefits of a library and very many other important privileges.

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\* We sent an early proof of this paper to Mr. Rawson, and he at once adopted Mr. Lea's suggestions, in the manufacture of his invention.

To obtain a proper room for our meetings, &c., involved a yearly expenditure, together with gas and coal bills, of many hundreds of dollars (quite \$800), to do it up in proper style. This to all the members save *one*, was decided as useless extravagance, so we have joined forces as above stated, where we are furnished rooms, lighted and heated, at a trifling cost to each member; have our proceedings published in the transactions of the Institute, in good style, at the expense of the State of New York, and will be provided with rooms for holding fairs for all matters connected with our art, at which premiums may be awarded for superior apparatus or specimens of photography in any of its varied and beautiful forms. Thus it will be seen by our friends, that though the oldest Society in this country has ceased to exist as a separate institution, it has by its change, vastly added to its power of usefulness. I cannot bid adieu to it without saying, that through all the years of its existence, its proceedings have always been conducted in a most proper and reputable manner; no altercations have ever disgraced its rooms; no jealousies have ever caused the least trouble. The officers have ever been faithful to their duties, and each member has earnestly striven to advance its welfare, extend its field of usefulness, exalt and improve our glorious art, to the full extent of his ability.

The consideration of this subject at its meeting on the 13th ultimo, consumed most of the time, thus the discussion of photography proper, was somewhat less than usual.

The subject of the much-abused ambrotype, or, as some Artemus Ward might say, "tintype," was considerably ventilated, and as it forms no important branch of sunlight portraiture, I will condense as much as possible the various opinions expressed, and formulæ given. Mr. Weeks, whose experience in this branch of the business, has been considerable, gave the following formula, as being the best he knew of; indeed he looked upon it as being just right in every way, giving a picture, soft, very round, excellent whites, and free from the metallic lustre, so objectionable to most people.

Plain Collodion, . . .	1 ounce.
Iodide of Ammonium, . .	3 grains.
" Cadmium, . . .	1 "
Bromide " " . . .	3 "
Saturated Tinct. of Iodine,	2 drops.
Hydrobromic Acid, . . .	$\frac{1}{2}$ drop.

The bath to be 55 grains to the ounce, acidulated with C. P. nitric acid.

The developer, as follows :

Water, . . . . .	16 ounces.
Protosulphate of Iron, .	$\frac{1}{2}$ "
Double Sulph. of Iron and	
Ammonia, . . . . .	$\frac{1}{2}$ "
Loaf Sugar, . . . . .	$\frac{1}{2}$ "
Sulphate of Potash, . .	60 grains.
Sulphuric Acid, . . . .	40 drops.
Acetic Acid, No. 8, . .	2 ounces.
Alcohol, . . . . .	1 "

Mr. Thomas said that it was some years since he had made ambrotypes, but he was satisfied that good work could only be made by the use of a potassium collodion, and the ordinary acetic acid and iron developer. The best now made in this city, were made in that way. He strongly recommended the use of—

Iodide of Potassium, . .	5 grains.
Bromide of Ammonium, .	3 "

to each ounce of plain collodion.

Mr. Chapman was also of this opinion. He had found the following formula of great service in his gallery, when the bath became overcharged with iodide, resulting in pinholes; with it, in such a bath, he could always work to advantage:

Plain Collodion, . . . .	1 ounce.
Iodide of Ammonium, . .	3 grains.
Chloride of Cadmium, . .	$\frac{1}{4}$ to 1 "

He further stated, that the use of this collodion would rectify a bath troubled in this way. At the risk of being laughed at, I must say that an ambrotype, well made, is by no means a bad picture; far, far better than very many of the so-called more artistic "cartes;" poor, indeed, many of them are, but not poorer than the amount paid for them.

Nearly every adventurer upon the photographic ocean, first turns his hand to the ambrotype; if he does well, has the skill and patience to struggle along until he makes

good work, he ultimately enlarges his operations, and adds the paper positive to his stock in trade, turns up his nose at the sight of his first love, and in his success in the higher and more difficult branches of his art, forgets that he once made ambrotypes, and takes no trouble or pains to improve this unpretending picture.

The following most valuable and interesting paper, by Mr. H. J. Newton, is just in time for the season of out-door work :

The prints accompanying it were in all respects most excellent; the process is simple and easily worked, and has the great advantage of certainty and portability. It is worthy of careful trial by all who practise photography in the field.

"MR. PRESIDENT: I am again before the Society with my hobby, which you know is paper negatives.

"One of our eminent public men said lately, that 'blessed is the man who has a hobby and sticks to it.' Now, you and most of the members of this Society, will testify to the fact that I have stuck to my hobby; and I feel that I have received the blessing, if success in producing what I have so long sought and labored for, is what was meant by being 'blessed.'

"Having devoted much time in the last few years to perfecting a process which would make the production of paper negatives practicable for landscape photography, I am happy to state that I have succeeded to my entire satisfaction. I have not only been able materially to reduce the time of exposure, but have also improved all the essential qualities pertaining to a paper negative; and I am quite positive that I can produce a stronger and more artistic picture than can be done by any other process.

"The specimens and prints which I exhibit to-night will speak for themselves; for beautiful effect and fineness of detail, they leave nothing to be desired.

"In giving the process by which these negatives were produced, I shall enter into all the details of manipulation, omitting nothing; this will, of course, make it seem more lengthy than it actually is; therefore, I will give the time usually employed in each operation.

"First dissolve in 15 ounces wood naphtha 1 ounce gum guaiacum; when the naphtha cannot be conveniently procured, alcohol answers a very good purpose. This should be filtered; cover the funnel with a plate of glass to prevent evaporation; it will go through the paper as quick as the same quantity of water. Next procure Saxe negative paper; ascertain which is the right side, by holding it to the light by one corner, so that the rays fall upon it very obliquely; when the rays strike it in a particular way, you will observe dark bars across the one side of the sheet; this is the wrong side. Next make a mark with a pencil on the right side of the corners of the paper, then divide it into such sized sheets as you wish to prepare. (I usually work half sheets.)

"Now take a porcelain dish and place it in a vertical position, so that the gum solution will run back upon the bottom of the dish about three inches; then take one edge of the paper in a pair of pincers—I use rubber ones, metallic ones will answer if they are clean and free from oxidation—holding the other edge in the fingers, and immerse the edge held by the pincers in the solution; then bring the other end directly over the solution and make a short bend in the paper by raising the lower end out of the solution, and carry the sheet through the solution in this position, then hang it up on a line with a small clothes pin. All of this is very quickly accomplished.

"I usually prepare twelve sheets at a time, which requires from twenty to thirty minutes.

"In a short time these are dry enough to take down and lay away for future use. The next step is to bromo-iodize them, which is done by immersing them in a solution of iodide and bromide of cadmium, ten grains of the former and four grains of the latter to the ounce of water.

"You can immerse as many sheets as you have solution to cover; they should remain in from five to fifteen minutes.

"When they have been in long enough, place your thumb upon one corner of the sheets and press them down to the bottom of the dish, and hold them there while you turn off the solution; as soon as the solution



has run from under the sheets they adhere to the bottom of the dish, which can be set upon its edge to drain, then hang them up to dry as before.

"When iodized, it will keep for a long time. As gum guaiacum is sensitive to light, I prefer to do all this in the evening or in the dark-room.

"You will get good pictures if you do not, but I fancy I get the best when the paper does not come to the light, until it does so in the camera. The sensitizing is done by immersing, for about five minutes, as many sheets as you wish in a negative bath, prepared in the same way as for collodion, viz., 1 ounce nitrate of silver; 12 ounces pure water; nitric acid, 1 drop to 4 ounces of the solution, or until it reddens blue litmus paper.

"The immersing is done in every instance with a glass triangle.

"When the paper has remained in the sensitizing solution long enough, turn off the solution the same way as with the iodizing.

"When sufficiently drained, pour on sufficient distilled or rain-water to wash them in by taking each sheet separately by two corners and drawing them through it several times. This water will contain silver enough to pay for saving. Next wash them several times in the same way with water strained through several thicknesses of linen or cotton; it is not necessary that any but the first washing should be with distilled water. Now drain off the water the same as before, and pour on sufficient to wash them in a solution of chloride of sodium, 2 grains to the ounce. Wash in this two or three minutes, and then in clean water sufficient to remove the salt. After the water is drained off, turn on a solution of tannin, 10 grains to the ounce.

"They should remain in this about three minutes, then washed, and the water drained off as before, and finally taken out separately and laid between sheets of blotting-paper and put into a press or under some heavy weight. In about fifteen minutes they should be placed between dry sheets, and undergo two or three changes; the last time they should remain an hour or two; this is a very important part of the preparation, and by following the directions here

given you will have your paper perfectly flat, and there will be no difficulty in adjusting it in a holder.

"Some judgment should be exercised in pressing it, as too heavy pressure would imprint the surface of the blotting-paper on your sensitized sheet.

"It can be fastened to a sheet of glass with a little wax, made by melting together equal parts of beeswax and resin.

"My holders on which I lay the paper are wood and slightly curved just sufficient to correspond to the curve of the field of my lens; they lay better than they would if perfectly flat. I put a very small tack in each corner, and when as large a sheet is used as a 9 x 11, I put one in the centre of the longest side. To sensitize eight 9 x 11 sheets, I require little less than an hour. The exposure with a Globe lens, next to the smallest opening with good light, should be from two to three minutes.

"Develop with three grains of gallic acid and one and a half grains of pyrogallie acid to the ounce of water.

"Dissolve the gallic acid first in hot water and then add the pyrogallie, or you will have trouble in making the solution perfect.

"By using the developing solution warm, about 90 or 100 degrees, you can lessen the exposure. To every five ounces of solution, add 1 drachm of glacial acetic acid. When ready for use, add 1 drachm to every 5 ounces of a 40-grain nitrate of silver solution, which will amount to one grain of silver to the ounce. The sheets should be immersed in this solution with a glass triangle, placing them on the solution, the exposed side down, and then pressing them under with the glass triangle, putting it into clean water between each immersion to prevent marking with the developing solution adhering to the triangle. You can develop as many as you have solution to cover, and, if the exposure has been right, they should all be sufficiently developed, and with the right intensity, in from fifteen to thirty minutes. The first ones immersed will take up and appropriate most of the silver, and if you have six or eight sheets you will have to add more silver to bring up the last ones, or you can take each one separately on a sheet of glass and wash off with

a soft linen or silk cloth; the exposed side had better be washed with a soft brush and redeveloped with pyrogallic and silver the same as with collodion negatives.

"When proper intensity is attained, they should be washed off on a sheet of glass with a soft cloth or brush, and immersed in a solution of hyposulphite of soda, the same as for fixing collodion negatives. Ten or fifteen minutes will be required for the fixing. When fixed, wash them off on the glass plate with the brush, and then place them between blotting-paper, and treat them the same as directed before to make them perfectly flat. It would be better after the last changing to let them remain over night.

"When they are perfectly dry, they are opaque. To make them clear or translucent, so that they will give clear prints, rub upon the back poppy oil, mixed in equal parts with mastic varnish. In a day or two it will be sufficiently dry to print from. If you should wish to use it immediately, turn on the surface sufficient negative varnish to cover it by rubbing it over with a soft cloth, warm it a very little, and it will soon be dry. After it has penetrated through the paper, all the surplus can be rubbed off with a cloth. Another good way to clear them, is to take magilp, which can be obtained of any dealer in artists' materials, or it can be prepared by mixing one part mastic varnish with two parts drying oil.

"As a rule, all vegetable oils which dry quick acquire a yellow tone; those which dry slow remain white. Poppy oil is, I think, the best of the drying oils in this respect.

"There is no negative process that I am acquainted with, so sure as the one I have here described. The specimens which I have here, are a part of twenty-four taken at different times, six at a time, and every one perfect; in fact, I never think of having a negative developed imperfectly. There is a certainty about the process which adds very much to its value; and although it may seem long, because I have been so very minute in describing it, I can assure you it is quicker and more easily worked than the ordinary tannin process.

"The paper, when sensitized, will keep for

a long time, if properly preserved in a dry place, away from light."

Having given your readers a rather unusual dose, viz.: Ambrotypes, and Paper Negatives, two subjects not often treated upon in the Journals, I propose to relieve them from my scribbling for one calendar month.

C. W. H.

### PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting of the Society was held on Wednesday evening, May 1, 1867.

The Vice-President, Mr. Tilghman, in the chair.

Minutes of last meeting were read and approved.

Dr. Wilcocks showed the members a simple apparatus for filtering collodion, without running the risk of evaporation during the operation.

There was nothing new in the principle of the contrivance which he exhibited, but merely a cheap and convenient application of one long understood.

The apparatus consisted of two bottles with wide mouths, into which a single cork was fitted. The cork contained two tubes made of reeds, the larger, one-third of an inch in diameter, for the collodion to pass down; the other, as small as a reed can be obtained, intended for the air to pass up.

Reeds were used instead of glass tubes, because, without having any more action on collodion than glass, they are less liable to be broken.

The larger tube extended from the upper surface of the cork, through it, and an inch below it. The smaller tube extended from the lower surface of the cork, through it, and three inches above it.

To use it, the cork is removed from the bottles, a piece of cotton is put into the larger tube, and pushed to its lower extremity. The collodion to be filtered, is poured into one of the bottles, and the cork, with the small tube downwards, is placed in the same. In doing so, it is necessary to place a finger over the orifice of the small tube, to prevent the collodion from spirting out, while the cork is pressed into its place.

The other bottle is then put over the upper part of the cork, and pressed home.

The apparatus must now be inverted. In a few seconds the collodion will be seen coming through the larger tube, drop by drop, and perfectly clear.

Mr. Tilghman submitted for inspection, a magazine camera for dry plates, of very simple construction. A door in the rear end of the camera (the latter made of the exact size to contain the plates used), opens by a hinge at the bottom. Three studs, two at the base below, and one in the middle above, are fixed equilaterally in the interior of the camera, so that the dry plate, when pressed against them by a spring, shall be exactly in the focus of the lens; five other plates are behind the front one, waiting their turn for exposure; each plate having secured to its back opaque paper or card, to prevent light from passing through it to its rear neighbor. These papers are each provided with three shellac bosses at the edges to prevent the collodion surfaces from touching the paper. The camera is thus charged with six plates; when the front one has been exposed, the camera is placed in a light-proof bag, the right hand introduced, the box tilted so that all six are inclined backwards at the top, the front exposed plate removed and made to occupy the rearmost place. The door is now shut and secured, and the camera is ready for another exposure, and so on till all have been exposed. The camera exhibited (for stereos), weighed 7 ounces; the six plates, 12 ounces; the bag, 6 ounces; and the tripod, with ball and socket, 20 ounces; total, 2 pounds and 13 ounces of impedimenta.

Mr. Tilghman then called the attention of the Society to the first proper English recognition, that he had been able to find, of the great merits of our countryman, Louis M. Rutherford, Esq., of New York, in celestial photography.

On the Continent, generally, Mr. Rutherford has been justly appreciated, but, from some latent cause, our insular cousins have pretty much ignored his superiority in that branch of photography, to the perfection of which he has given so much of his time and means.

Mr. Tilghman then read from a work

lately published, entitled "Descriptive Astronomy," by George Chambers, F.R.A.S., Barrister at Law: "To an American we are indebted for the best pictures of our satellite yet produced, and it is difficult to conceive that anything superior can ever be obtained; and yet, with the fact before us that De La Rue's are better than any others taken in this country, so it may prove that even the marvellous pictures of Mr. Rutherford may be surpassed."

Mr. Tilghman hoped that notice might be taken in our published proceedings, in justice to Mr. Rutherford.

In connection with this, Mr. Tilghman suggested as an interesting subject for discussion by the Society, the claim made by Mr. Rutherford, that by correcting a lens so as to unite the actinic portions of the spectrum without regard to the visual rays, impressions may be taken in one-tenth the time necessary with lenses corrected in the usual manner. No greater advance could be made in photography than in obtaining lenses for terrestrial views, that would work as quickly as Mr. Rutherford's great 11½-inch refractor.

On motion adjourned.

JOHN C. BROWNE,  
Recording Secretary.

## OUR PICTURE.

THE subject of our picture this month is the "*Falls of Minnehaha*."

Were it not that Professor Longfellow had immortalized this very beautiful work of nature by his charming poem of *Hiawatha*, we suppose very few of the many travellers who have visited it from all quarters, would ever have heard of it.

All have read *Hiawatha* no doubt, and remember how on his return from his fight with *Mudjekeewis*,

"Only once his pace he slackened,  
Only once he paused or halted,  
Paused to purchase heads of arrows  
Of the ancient Arrow-maker,  
In the land of the Dacotahs,  
Where the Falls of Minnehaha  
Flash and gleam among the oak-trees,  
Laugh and leap into the valley.



With him dwelt his dark-eyed daughter,  
Wayward as the Minnehaha,  
And he named her from the river,  
From the waterfall he named her,  
Minnehaha, Laughing Water.

Was it then for heads of arrows,  
That my Hiawatha halted  
In the land of the Dakotahs?

Was it not to see the maiden,  
See the face of Laughing Water  
Peeping from behind the curtain,  
Hear the rustling of her garments  
From behind the waving curtain,  
As one sees the Minnehaha  
Gleaming, glancing thro' the branches,  
As one hears the Laughing Water  
From behind its screen of branches?"

The end of this love story is too well known to go further into detail here. Would that we might have the happy twain in our picture. It would be immensely interesting, but as we could not, we had to substitute the next best charmers we could find at the time.

This picture was made in October last, when in company with our friend Carbutt, of Chicago, we visited this romantic scene. The day was hazy, but it was the only one we had to visit and to photograph this rather difficult subject, so we hired a commodious conveyance at St. Paul, packed our wives and our *other* photographic traps in it, and made for "Laughing Water." The ride was delightful; the rope-ferry at Fort Snelling slow, rickety, and romantic. The prairies were wide and the roads dusty, but we watched in vain for any signs of Western wildness. The civilized axe and rifle had driven all such things away. The Ahdeek', the Ah-meek', the Kagh, the Mishe-mo-kwa, the Pezhekee', the Wa'wa, and the Waw-be-wa'wa, had all forsaken these parts and sought more congenial homes. Here and there we startled a tiny Adjidau'mo, or frightened a family of pretty Mush-koda'sa. The low bass notes of the Dah-hin'da fell upon our ears occasionally—sounds too low and solemn to awaken or woo an echo—as we approached the falls, and the black Kah-gaghee lazily flew ahead of us, uttering his contemptuous caw. All else was silent, and it seemed almost like a Sabbath day. Finally, we drove up to a dingy-looking little wooden building, and were ordered to get

out, as we were "there." We listened for the roar of the falls and looked for upheaved rocks, but without success. A few steps from the "hotel," however, brought us to them, but they were below us instead of above us. An hour or two there gave us very exalted ideas of Minnehaha, and we still hold them. It is a grand, a delightfully beautiful spot. The visitor may walk under the falls from one side to the other, without fear, and without needing the drink of brandy which we saw a Kentuckian give his wife before she would venture. But little occurred to hinder our enjoyment. A sleepy Ko-ko-ko'ho creeping from one hiding-place and blindly seeking another, caused our companions some fright, as they feared the vile Kenna'beek, and not without cause, for we killed two or three while there.

The Bemah'gut entwined itself lovingly around the trees, and its youthful branches reaching out as if to kiss the falling spray, were blown to and fro by the gentle Shawanda'see.

Minnehaha was clothed in her most beautiful garments, and improved upon acquaintance. No sound of Annemee'kee or the growling of the wild Mishe-mo'kwa alarmed us. Our enjoyment was full until we asked the pleasure of holding our lady friends under the falls while they took a shower-bath. Their answer was, kaween! esa! and we were forced to flee.

It was indeed a pleasure to be remembered to stand on the rustic bridge below, watching the falling water, and listening to its sweet ewa'yea. A few wigwams and red-skins, ("noble Indians!") would have completed this most romantic picture. Thoughts of them carried us back, wondering at the mysterious changes wrought by the great and good Gitche' Gumees.

No doubt the falls were at one time much wider and greater in volume, and not only their laughing but their roaring heard at a much greater distance than now. But, alas! since Yenadiz'ze and his Nenemoo'sha have ceased wooing hereabouts, Minnehaha has grown less noisy, and it is said the white man talks of turning its waters aside for his profit and use, and of spoiling our beautiful falls altogether. Naught will be

left then but the Jee'bis, who will "walk the night" and moan and frighten the little white children.

We secured three or four whole-plate negatives for the *Photographer*, then much further away from us than we once thought we could ever go from it, and several stereoscopic negatives, besides humoring several visitors who desired their pictures made with the falls. If some enterprising fellow would go out there during the visiting season with his portable gallery, he could do a nice business.

All the traps for out-door work, which our friend Carbutt has heretofore described in these pages, were brought into use, and found to be just the things needed.

The prints were made by Mr. Carbutt, whose formulæ we have also published, and will, we trust, prove acceptable, and prepare you to better enjoy the fine cabinet portrait we hope to have in our next.

Should you desire a real nice trip the coming season, and to recruit your health, take a trip up the Mississippi in one of the elegant boats of the N. W. Union Packet Company, and go to Minnehaha, and, our word for it, you will be repaid fully, and enjoy it.

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### ORNAMENTAL ACCESSORIES.

ANYTHING that tends to cultivate and benefit our readers and to improve their work, is worthy of notice in these pages. Since the introduction of the new size, a want has been felt for new furniture and accessories. This want has been partly supplied by Ashe with his backgrounds, and Knell with his handsome chairs and tables. But something was needed to put on the table, in order to relieve the monotony of the picture and to break up the background as it were.

We suggested an idea to Messrs. Wilson & Hood, some time ago, and a day or two since they handed us a series of photographs of the most graceful ornamented vases, urns, &c., that could be well conceived. They are graceful in shape, well made, and of a neutral color, which is admirable to photograph. They are solid, though made in parts, so changes may be made in them,

in order to avoid using the same one too often. They are also bored so that flowers and grasses may be put in them, and you may use a fresh bouquet daily if you are so disposed. Moreover, the various styles have been photographed carte-de-visite size, grouped, and reduced to the new size, copies of which may be obtained for a trifle, by writing to your stockdealer or to the manufacturers.

The advantages of these accessories cannot be overrated. They break up the monotony of the picture, and add great beauty to it. Every photo-artist should have half a dozen, so they may not use the same thing for every subject. They are gotten up in excellent taste.

The price asked for them is reasonable, and will enable every one to have some of them.

We wish we had two or three nice woodcuts of some of the designs, to give you here, but you can do better by sending for the photographs, as you will then see just how they take.

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### RAWSON'S MULTIPLYING REFLECTOR.

IN addition to our regular picture, through the aid of Mr. D. W. S. Rawson, we are enabled to present herewith, a specimen of work made with his ingenious apparatus. Our readers will notice for themselves, the advantages of this method of multiplying pictures, and the work speaks for itself. Please read carefully the claims set forth in the advertisement. Mr. Rawson has adopted the suggestions made by Mr. M. Carey Lea, in another column of this issue. We thought the matter of such importance to him, and to all who may have occasion to use his Reflector, that we sent him an early copy of Mr. Lea's paper, to enable him to adopt the improvement in those under process of manufacture. We have not seen it mentioned, that this apparatus may become useful in multiplying photographs for druggists' labels, reward cards, &c. &c., for which photographs are now extensively used. To ferrotype-men it will be invaluable.

## Editor's Table.

**ERROR.**—In Mr. Wenderoth's toning formula, published in our April number, read, *Water, 32 ounces*, instead of "*Water, 23 ounces.*"

**THE NEW CABINET PORTRAITS.**—It is a source of great gratification to us to see how nicely this new size is becoming popular. Mr. Gutekunst, of our city, tells us he is making a great many, and that it will be a decided success. From all quarters we hear good reports of it. Do not forget it this month, because we have given you no specimen of it. We could not get one ready in time, but we shall jog your memory again in our next. Work and push it hard, and it will go.

Mr. Charles Sweet, Cincinnati, Ohio, says: "Have you forgotten the *vignette*, in speaking of the new size?" No; we have not forgotten it, but we do not think the idea of the cabinet portrait is quite carried out by it, unless the prints are full figured, and printed in "indicated" or "illuminated style." Mr. Notman has sent us some printed, in this way, which are very fine.

**IMMENSE PRINTING ESTABLISHMENT.**—**MESSRS. SHERMAN & Co.**, southwest corner of Seventh and Cherry Streets, Philadelphia, have recently increased their already immense facilities for Book Printing, and, in addition, have fitted up the **FIRST FLOOR** exclusively for the Jobbing Business, thus presenting for the use of their customers the largest and handsomest establishment of the kind in our city, and the only one we have seen on the ground-floor. They now occupy four floors of their extensive building, and, with compositors employed setting the type; pressmen busily at work; one set of sheet men engaged in preparing the white paper for printing, while another set are occupied in pressing the sheets after they are printed; the dozens of presses of all sizes constantly in motion, and paper flying in all directions, from a note circular to a City Directory, make up an exciting scene of business, and we hope prosperity.

Several periodicals are printed by this firm for the publishers. Among them, we may mention, **THE PHILADELPHIA PHOTOGRAPHER**, which is a fair specimen of Sherman & Co.'s work, and which is praised everywhere for its typographical beauty. Mr. M. F. Benerman, who started the *Photographer* with us, is one of the members of this firm, and has the Journal always under his

special care and charge, and to him is due the praise for its appearance.

Messrs. Sherman & Co. fill all orders for Printing, and are largely engaged in supplying Photographers with Stationery, Card-mounts, Card-boards, &c., &c. Their advertisement in the front of this number of the Journal gives some idea of the variety of their work. Try them, and you will be pleased.

Mr. H. W. HAYDEN, Waterbury, Conn., has sent us a curiosity in the way of a photograph which is printed on ordinary writing paper, without the use of either nitrate of silver or hyposulphite of soda. In color it resembles an untuned silver print, and possesses considerable depth. Mr. Hayden says "The chemicals cost but a few cents for several hundred prints; the prints may be finished in a very few minutes, and are undoubtedly permanent, as nothing is required to fix the picture but simple washing." Further, he does not enlighten us. There are several easy methods for obtaining such prints. One is with iron salts, followed by red prussiate of potash and then tannin; and another by bichromate of potash, followed by extract of logwood. They are never up to silver, however.

**CURIOUS.**—About a year ago, Mr. Robert Newell, of our city, constructed a photographic van or wagon, and used orange glass to light it. This answered very well for a while, until recently he was troubled with foggy plates. After some trouble to find the cause, he put yellow muslin over his glass, and lo! the fogging vanished. On examination the orange-glass was found to have greatly changed in color, and to have lost its peculiar advantages to photographers.

**FRITH'S SWISS AND ENGLISH VIEWS.**—We have received from Wilson & Hood, 626 Arch Street, Philadelphia, a series of magnificent Alpine, Swiss, German, and English views, which are truly exquisite. The Alps, the glaciers, the lakes, the rivers, the valleys, the towns, and the villages, are all finely photographed, as well as the English castles, abbeys, parks, &c., &c. They are whole-plate or 7 x 9 size, and sold, mounted, for the surprisingly low price of \$1 each. They are fine specimens of photographic skill and manipulation.



NOTICE TO SUBSCRIBERS.—We regret that we have such frequent complaints from our subscribers, that their numbers do not reach them. Our pictures seem to attract the cupidity of some of the post-office officials or others, and this we cannot control. We always print a hundred copies more than we need, and every subscriber being entered on our books, is sure to have his numbers regularly directed and sent to our post-office here.

If they do not reach their destination, we will share the loss, and supply duplicates for 40 cents each. When subscribers have reason to believe their numbers are lost, they will save us correspondence if they will remit for duplicates when they order them. If the fault is found to be ours, the money shall be returned. We hope they will have no occasion to complain. We will pay \$50 reward for the detection of any one tampering with our numbers in the mails.

MR. WILLIAM NOTMAN, Montreal, has favored us with some magnificent cabinet portraits of the famous Ristori and her family. By Mr. Notman's kindness, we shall be enabled to present our readers with prints from one of the negatives—the family group of four—which will exceed anything in that line yet produced.

WE are much in need of copies of this Journal for February, April, and May, 1866. Parties willing to send them to us, will be paid 75 cents per copy. We want all we can get.

MESSRS. BRUBAKER & BROTHER, Houghton, Michigan, will again please have our thanks for excellent whole-plate views of the silver mines, mentioned in our last.

CABINET PORTRAITS BY MR. J. H. KENT, BROCKPORT, N. Y.—Mr. Kent has favored us with half a dozen cabinet portraits, that have not only excited us considerably, but many to whom we have shown them. For excellence in every way we have rarely, if ever, seen their superior. This is saying a great deal. The lens used was no doubt an admirable one, the light all one could desire, and the party who managed them has shown skill, and is evidently a wide awake and tasteful photographer. The printing, toning, and finishing, is also everything one could desire in a silver print. We will not particularize. They are all elegant. Such beautiful gradation; such artistic posing; and (with a few slight exceptions), such arrangement of accessories; and such skilful management of *everything*, we seldom see. Some of our good friends will have to

look after their laurels. Mr. Kent has volunteered to print from one of his negatives for our Journal, and we most certainly accept, as we desire to secure the very best for our good readers.

“CROSSING THE PLAINS TO MONTANA WITH CAPTAIN FISK'S EXPEDITION, 1866.”—This is the title given to a series of about thirty stereographs sent us by Mr. J. Carbutt, of Chicago, from negatives by Messrs. Bill & Illingsworth, who accompanied the expedition. They are a most interesting and valuable collection, and give one a fine idea of the tediousness, the loneliness, and the danger of a trip across the vast plains of the West. Some of the portraits of Indian chiefs and squaws give one a fair chance to study the character of those horrid creations of red dust. There is but little to *love* in them, we feel assured. Alas! that poor Glover should have fallen into such hands. The pictures are all well taken, considering the difficulties, and only add to our desire to visit that great section of our country with our own camera. The printing, and finishing is in Mr. Carbutt's best style.

IN our last issue we announced that a subscriber had informed us that he had discovered a plan by which the admission of light upon the negative or positive picture would cause astonishing developments. Since then we have had an interview with the discoverer, who is Mr. Franklin B. Gage, St. Johnsbury, Vermont. He described his process to us, which is so simple and so easy as to seem almost ridiculous, but we were privileged to see some specimens which evinced the most soft and beautiful blending of light and shade, and yet wonderful vigor and strength. Only the severe illness of Mr. Gage, prevents the publication of his specifications and claim for patent in this issue. That the process is simple, practicable and certain, we are convinced. American and Foreign Patents have been applied for, and in our next we hope to give fuller information concerning Mr. Gage's method. While we would not say *too* much, we feel that it is going to work somewhat of a revolution in Photography.

LAI D OVER.—We are obliged to lay over our lecture to the “Class of Troubled,” on account of the pressure upon our columns at the time when we were nearly ready to go to press. Also Mr. Lea's Summary, our Salad, and a few hints on the Carbon Process. By the way, we have heard from very few of our readers on Carbon. Are you doing nothing with it?

THERE is no good lens in the market for making interiors. Will our opticians not turn their attention in this direction?

STEREOGRAPHS RECEIVED.—Messrs. Whitney & Beckwith, Norwalk, Conn., have favored us with a parcel of stereographs which are very beautiful and interesting. They are of some of the scenes in the charming Connecticut Valley; among, them the Bridge over the Housatonic at Stratford; view under the Bridge at Milford; on the Bronx River, at Williams' Bridge; Bridge over Rippowam River at Stamford; Looking up Rippowam River, at Keyser's Island, Norwalk; at New Hope, Stamford, and a View of Milford from the Railroad Bridge. These are followed by Farm Scenes, which always have a charm for us. A little girl on her favorite donkey, a yoke of fine oxen standing yoked together, and a little girl feeding a family of white turkeys, with oxen and cart in the background, are all very pretty. The latter is called "Thanksgiving Anticipations," and certainly brings to mind that great institution in our Yankee land—a Thanksgiving dinner. The polite little note accompanying these views says: "We mail you these, not because of any particular excellence in the manipulation or to show you what a one-horse country gallery could do, but for your encouragement in your efforts to enlighten and 'post us up' in everything pertaining to photography. We think no one can carefully read your Journal without being strongly incited to more earnest effort after the highest excellence possible in our beautiful art."

THE STEREOGRAPHIC TRADE.—Messrs. E. & H. T. Anthony & Co., N. Y., have long taken the lead in publishing stereographs. Their variety is endless and overwhelming. We are glad to hear from them that this trade is reviving. No one has done more to further it than they have.

PROF. HENRY MORTON has recently been elected to fill the Professorship of Chemistry and Physics in the University of Pennsylvania, for a year, during the absence of Prof. John F. Frazer in Europe. No more admirable and worthy choice could have been made, and we congratulate all concerned.

MESSRS. HENSZEY & Co., 812 Arch Street, Philadelphia, are now vigorously pushing the cabinet portraits, and with considerable success. It is one of the surest evidences to us that the new size will go, when we see those taking it up who at first resisted it.

Messrs. Henszey & Co. have an excellent light, and of course good work is the result when managed by their operator, Mr. Stuart Robinson.

TRASK'S FERRO-VIGNETTES.—Ferrotypes have generally been looked upon as unworthy of any sort of praise, but, when looking over a number of the "ferro-vignettes," made by Mr. A. K. P. Trask, No. 49 North Eighth Street, Philadelphia, we are obliged to acknowledge that such beautiful effects of light, shade, and half-tone are seldom excelled in any kind of picture. They are assuredly very fine.

HALL'S INTENSIFIER, FOR NEGATIVES.—This compound is highly recommended, and, although we have not tried it, the gentleman whose name it bears has shown us some very fine negatives on which it has been used. Our rule for intensifying is not to intensify at all, but if you are in the habit of it, and *must do it*, try Prof. Hall's compound.

PEARL PAPER. — All genuine is stamped "Pearl" on one corner of each sheet. For sale by all stockdealers.

## Specialties.

NOTICE.—It will be understood that matter under this head is not to be considered as always having editorial sanction, though we shall endeavor to purge it of anything tending to deceive or mislead. Stockdealers will find this a beneficial mode of advertising, and sure to pay largely. Six lines, one insertion, \$2, and 25 cents for each additional line, eight words to a line—in advance.

*Ornamental Accessories.*

GALLERY FOR SALE.—PRICE, ONLY \$1000.—The undersigned wishes to dispose of his photograph gallery, located in one of the best positions in the city of Davenport, Iowa, and doing a large and increasing business. It is newly fitted, and contains a complete set of photographer's instruments. Rent low. Address

CHARLES A. ATKINSON,  
P. O. Box 80.

*Urns, Vases, Card Baskets.*

A SECOND-HANDED DARK TENT (CARBUTT PAT-  
TERN), FOR SALE.—Price, \$25. Been used but  
very little. Also a tripod and a pair of  $\frac{1}{4}$  Jamin  
view attachment tubes, very low. Also a  $\frac{1}{2}$  size  
Voigtlander tube, and a 4-4 box. All second-  
handed.

WILSON & HOOD, Stockdealers,  
626 Arch Street, Philada.

### Ornamental Accessories.

NOTICE.—Messrs. H. C. Price & Co., late No.  
606 Broadway, N. Y., have sold out their stock  
of photographic goods to William B. Holmes, No.  
555 Broadway, N. Y. Mr. Holmes will be glad  
to pay attention to all the friends of both houses,  
promptly. See change in advertisement.

MAGIC SEGAR-HOLDERS.—We have received a  
large and fresh supply of *Magic Segar Holders*  
from Germany. Making photographs by *smoke*  
is a new process but a sure one, amusing and  
wonderful. By mail, 20 cents, or 6 for \$1. \$1.75  
per dozen. Discount to the trade liberal.

WILSON & HOOD, Sole Importers,  
626 Arch Street, Phila.

SWISS, ALPINE, ENGLISH, AND WELSH PHOTO-  
GRAPHIC VIEWS BY FRITH.—We have received an  
admirable selection of these unequalled views,  
which are worthy of study by all photographers.  
They are made with the Dallmeyer wide-angle  
lenses, and are wonderful for their beautiful soft-  
ness and photographic excellence. They em-  
brace views of the Alps and Glaciers, Swiss towns  
and villages; English parks, castles, and church-  
es; Welsh cottage and farm scenes. Size, whole-  
plate and 7 X 9. A careful selection made for  
parties out of town. Price, \$1 each by mail,  
prepaid. Catalogues sent free.

WILSON & HOOD,  
626 Arch Street, Phila.

J. A. PALMER, dealer in all kinds of photo-  
graph and ambrotype apparatus and materials.  
P. O. Box 529, Savannah, Ga. Inventors and  
manufacturers of photographic goods are re-  
quested to make arrangements with this house  
for the sale of their goods.

### Pitchers, Vases, and Urns.

PETER PARY'S FRENCH NEGATIVE COTTON  
for photographers is sold wholesale and retail by  
F. Gutekunst, 712 Arch Street, Philadelphia.  
The justly renowned regularity in intensity, and  
entire solubility of Pary's cotton recommends  
it to artists.

STEREOSCOPIC HEADQUARTERS.—This name  
may be well applied to the house of Messrs. E. &  
H. T. Anthony & Co. Our readers having nega-  
tives or pictures for sale, would do well to com-  
municate with them. There is no such variety  
in the country as theirs. Buyer and seller may  
find it to their advantage to communicate as  
above.

WANTS TO LEASE a first-class photograph gal-  
lery, in some American city or large town, fur-  
nished complete with instruments, &c., or unfur-  
nished. Write, giving particulars as to terms,  
locality, entrance, number and size of rooms,  
sketch of the light and measurement. Address,  
post paid, Box 284, Brantford, Canada West.

### Ornamental Accessories.

FOR SALE.—One of the finest photograph gal-  
leries in the State of Pennsylvania, situated in  
the beautiful city of Williamsport, one of the  
most growing cities in the State. The gallery is  
new, and furnished with the best of furniture,  
with the latest improved cameras, from card to  
mammoth size. Location, No. 126 W. Fourth  
Street, in the finest part of the city, with a lease  
on building for fifteen years. Address

C. E. JONES,  
Box 283 Williamsport, Pa.

AN Englishwoman, who has had six years ex-  
perience in the photographic stock trade, and  
can give good references, desires a re-engage-  
ment. Address, stating salary given, &c., to

A. B., Post Office,  
Montreal, Canada.

PHOTOGRAPHIC FURNITURE.—Messrs. E. & H.  
T. Anthony & Co., advertise a novel piece of fur-  
niture, which will be found a grand convenience  
for the new size. It is susceptible of eighteen  
changes, representing a book-case, writing-desk,  
pier-table, bureau, &c., &c. It is admirably ar-  
ranged.

### Urns, Vases, Card Baskets.

WANTED, in a first class house in Baltimore, a  
good operator (one from a New York or Phila-  
delphia gallery preferred). A person of gentle-  
manly address, who understands the business  
thoroughly, especially the posing of sitters, can  
hear of a steady situation at \$1000 per annum,  
by addressing, with reference, "Baltimore Gal-  
lery," care *Bennerman & Wilson, Philadelphia*,  
with carte of self inclosed.



A COMPETENT photographer wishes to invest in a well-established and paying gallery, or will buy one. Address for one week, with full particulars, Box 5919 New York Post-office.

### Ornamental Accessories.

CLEMONS' ALBUMEN PAPER.—So popular has the albumen paper become, manufactured by Mr. John R. Clemons at his new factory, No. 915 Sansom Street, Philadelphia, that other manufacturers are employing him to manufacture for them.

As unprincipled parties are substituting inferior paper for his, and advertising it at a price lower than good paper can be made for, Mr. Clemons desires to say that his genuine paper may be had, *in the East*, of Wilson & Hood, and George Dabbs & Son, Philadelphia; James Lett, Harrisburg, Pa. *In the West*, of Rice & Thompson, Chicago, Ill.; W. H. Sherman, Milwaukee, Wis.; J. E. Whitney, St. Paul, Minn. *In the South*, of R. Walz and William King & Bro., Baltimore, Md. None genuine unless stamped "Clemons."

Plain paper always on hand salted, and salted for the trade. Every sheet of paper warranted.

JOHN R. CLEMONS,

Manufacturer of Photograph Papers,  
915 Sansom St., Philadelphia.

A BARGAIN.—We have on hand and for sale, one Holmes, Booth & Hayden's Mammoth Camera, with patent expanding diaphragm and extension bellows-box, reversible tablets, with holders from 4-4 size to 18 x 22 inches, focussing rack to box. Also one Mammoth Camera (Corbett) Stand, *all complete and in excellent order*. Tube warranted. A tube, box and stand of the above description is worth, at the manufacturer's prices, \$525. We offer it for sale, for a short time, for the very low price of \$250. Nett cash. For particulars, address

P. SMITH & Co.,

No. 36 W. Fifth St., Cincinnati, O.

FOR SALE OR EXCHANGE.—An extra 8-4 Harrison Portrait Combination for sale, or will be exchanged for a Dallmeyer Triplet, No. 3, a 10-inch Globe Lens and View-box, or a No. 6 Zentmayer Lens and View-box. For particulars, address,

WILLIAM J. LAND,

Box 180, Columbus, Ga.

### Pitchers, Vases, and Urns.

PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.—520 Walnut Street, Third Floor, Front Room. Meeting on Wednesday evening, June 5, 1867, at 8 o'clock.

COLEMAN SELLERS, President.

F. A. WENDEROTH, } Vice-Presidents.  
A. TILGHMAN, }

S. FISHER CORLIES, Treasurer.

J. C. BROWNE, Recording Secretary.

J. D. SERGEANT, Corresponding Secretary,  
420 Walnut Street.

### Ornamental Accessories.

ALABASTER PAPER!

ALABASTER PAPER!

ALABASTER PAPER!

\$3.50 per Quire.

WILSON & HOOD,

626 Arch Street, Phila.

A BUSH PANTASCOPIIC APPARATUS FOR SALE.—New and in beautiful order. Takes view, 10 x 12.

WILSON & HOOD,

626 Arch Street, Phila.

PHOTOGRAPHIC SECTION OF THE AMERICAN INSTITUTE, NEW YORK.—This Society desires to inform photographers throughout the country that they are at all times ready to render them any service in their power. Any questions not of a commercial or business character, will be answered promptly in their proceedings, which are regularly reported in this Journal, under the head of New York Correspondence. Many photographers of limited experience often have troubles connected with their art, difficulties which they might never solve, but which when discussed and considered by a score or two of their brother workers, would most generally find a ready solution.

Any communications of the kinds named are cordially invited—will receive consideration and be answered in the manner stated. Address all such to

CHARLES WAGER HULL,

Corresponding Secretary, 32 Park Row, N. Y.

### Urns, Vases, Card Baskets.

PHOTOGRAPHIC RESIDUES.—Western photographers and others, can have their wastes refined in Cincinnati on as liberal terms as can be obtained elsewhere, and the quality of the nitrate of silver and chloride of gold returned, cannot be excelled. Send for a circular giving terms, references, &c.

W. A. STEWART,

246 Main St., Cincinnati, Ohio.

ELEGANT POSING CHAIRS FOR THE NEW CABINET PORTRAITS.—Beautifully carved and handsomely upholstered. Cabinet picture of two styles sent on receipt of 25 cents. Chairs, \$40 to \$50.

WILSON & HOOD,  
626 Arch Street, Philada.

### *Ornamental Accessories.*

SAVAGE & OTTINGER, Salt Lake City, Utah, dealers in photographic materials. A large assortment always on hand. Publishers of views of the Overland Route and scenes in Utah Territory. Portraits of President Brigham Young (copyrighted), and the leading officers of the Mormon Church—card, stereoscopic, and 4-4 sizes.

Orders by mail promptly attended to.

Agents for the *Philadelphia Photographer*.

WILLARD MANUFACTURING COMPANY.—Messrs. Willard & Co., who have engaged in the stock business and manufacture of lenses with so much energy and satisfaction to their customers, finding more capital needed to push their really wonderful business, have formed a joint stock concern under the laws of the State of New York, and with a largely increased capital are now pushing with greater vigor than ever before. They have added magic lanterns and telescopes to their articles of manufacture, and Sarony's albumen paper to their articles for sale. With these increased facilities and the reputation already secured, we predict for them all the prosperity they so much deserve.

### *Urns, Vases, Card Baskets.*

FOR SALE, SURPLUS LENSES.—One C. C. Harrison extra  $\frac{4}{4}$  central stops, has  $\frac{1}{16}$  of an inch chemical focus; an old tube, but a very fine instrument. Price, \$90.

One C. C. Harrison  $\frac{3}{4}$  quick worker, \$45; just the thing for children's pictures.

Two extra  $\frac{1}{2}$  size, by Burr, of London; cost, in gold, \$37.50; will sell one or both, at \$30 each. They have a slight marginal aberration, but will do good work.

One Holmes, Booth & Haydens  $\frac{1}{2}$  size central stops, with slight chemical focus; a first-rate instrument. Price, \$35.

One  $\frac{4}{4}$  Voigtlander central stops, slight chemical focus, will make the new size good. Price, \$65.

Any of the above, I will send, C. O. D., or

on receipt of price, or would exchange for a Globe lens to cover 11 by 14 plate. Address, JOHN CARBUTT, Lake Street, Chicago.

CHILDREN'S POSING CHAIR.—In order to meet a prevailing desire for a posing chair for children, Mr. George Knell has manufactured one that is comfortable to the little ones, and which dispenses entirely with the head-rest. The backs may be raised and lowered, and the whole is admirably gotten up for the purpose.

WILSON & HOOD, Agents,  
626 Arch Street, Philada.

THE WILLARD MFG. CO. have placed the whole photographic fraternity under lasting obligations for producing the most superior Camera Tubes and Lenses ever offered for sale in this country.

Parties contemplating purchasing, are recommended to send for a descriptive circular, and investigate the claims of these instruments before buying.

BERGNER'S PRINT-CUTTERS FOR THE NEW SIZE.—Now ready. Recommended highly by Wm. Notman, Montreal; John Carbutt, Chicago; John S. Notman & Co., Boston.

WILSON & HOOD, Manufacturers,  
626 Arch Street, Philada.

NEW CHROMOS.—We have received an elegant lot of new chromos, new subjects, "Quails and little ones," the finest out yet. Far ahead of Ducks and Chicks. "The Awakening," a group of puppies just awakening to light. Very amusing. Beautiful Birds, &c. For sale low. Wholesale and retail. For terms, address

WILSON & HOOD.

THE AMERICAN ARTISTS' COLORING ASSOCIATION.—We know all the parties interested in this new combination to be just and reliable men. The artistic branch of the business is under the care and superintendence of one of our leading photographers and artists, whose name would be a guarantee for his work; and the business agents, Messrs. Wilson & Hood, are well and favorably known to many of our readers. We have seen the specimens of work at their office, and it is first-class. The Association will be found, ere long, a great public convenience and necessity.

WANTED to purchase, a GALLERY in a flourishing town or city. Address, stating particulars, price, &c., PHOTOGRAPHER, P. O. Box 118, Naugatuck, Conn.

T H E

# Philadelphia Photographer.

Vol. IV.

JULY, 1867.

No. 43.

## Photography at the International Exhibition at Paris.\*

BY G. WHARTON SIMPSON, M.D.

THE Great Exhibition now open in the Champ de Mars, in Paris, is, notwithstanding the many singular blunders which have marked its progress, probably the completest display of the world's art and industry ever brought together. Almost every nation with a distinctive name and character is represented by some of its products. From upwards of twenty of these we have examples of photography. Although there is a singular uniformity of character pervading the results, whether produced in the Ottoman Empire or the American Republic, a few notes made on the spot, on the special characteristics or respective degrees of excellence illustrated, may not be without interest to the readers of the *Philadelphia Photographer*.

As might probably be anticipated in an exhibition in Paris, France undoubtedly takes precedence in the excellence and variety of its display: then follows Prussia, then Austria or Russia. America, I regret to say, is comparatively, poorly represented; and England, although so near a neighbor to France, scarcely better. I was bewailing

the comparatively poor display made by England, to your esteemed countryman, Professor Emerson, whom I met in the Exhibition; for you know an Englishman, whilst the most intensely national and patriotic creature in existence, defending his country and all its belongings as the first in the world when he is speaking of it in the mass, and in general terms, is always ready to grumble and abuse anything belonging to his country in detail. I was pleased, therefore, when Professor Emerson assured me that his conviction was, after spending some time in England, and then some time in France, that photography in England was decidedly ahead of photography in France. The display made at exhibitions like this, is not therefore a fair criterion of the art or industrial position of any country. If it were so, the conclusion would be that photography was little practised in America, and with no great success; a conclusion which I, for one, know to be untrue.

The best American photo's exhibited, are the portraits of Mr. Gutekunst, which are very fine, round, delicate, and well modelled; they do not, however, from the position in which they are hung, produce all the effect they ought. Extreme delicacy and softness are qualities better appreciated when they can be closely examined, than when they are hung against a wall inaccessible for minute inspection. Mr. William-

\* We regret that Mr. Simpson's letter arrived too late for our last issue. However, none of its freshness is lost by keeping.—Ed.



son, of Brooklyn, also has some fine portraits. Mr. S. Beer (surely an Englishman), has a frame of very fine stereographs. Mr. Gardner exhibits some views of city scenery, Washington, I believe, which are unfortunately somewhat spoiled by the printing in of skies almost as heavy as the foregrounds. Mr. Rutherford's magnificent moon is exhibited, and his wonderfully perfect photograph of the spectrum lines. Mr. Watkins's views of California are amongst the finest landscapes exhibited in the building. There are a few more exhibitors, but their contributions do not call for remark. Mr. Notman sends a fine display of his cabinet pictures and fine hunting scenes, but they are hung so high that they cannot receive any justice from inspection in the Exhibition.

The display in the French department is very attractive, and well repays inspection, almost every branch of the art being well represented. The contributions of one gentleman have created quite a furore; I refer to the portraits of M. Adam Salomon. These consist of a series of portraits, all of one size, all in one style, framed close up to the picture, without any white margin, in black frames, with a narrow fillet of gold next the picture. These portraits are the common talk of almost all who visit the Exhibition, whether specially interested in photography or not, whilst photographers are ready to rave about them. I went prepared to be disappointed, prepared to discover some trick, prepared to allege triumphantly that they were not "what they were cracked up to be," and that they were much retouched, &c. When I saw them I was compelled to admit that I had never seen anything in photographic portraiture to equal them. In what, you will ask, does their especial excellence consist? It is perhaps more difficult to convey the impression to another than to be deeply under its influence oneself. I can go through the correct detail of particulars, but I doubt much whether I shall satisfactorily explain the matter. I may state first, generally, that the pictures are as excellent, technically, as they are artistically. They are, in the next place, the boldest, the most solid, and brilliant photographs I have ever seen.

Place one of them beside another picture you have hitherto thought excellent, and you will find the latter looks flat and poor in comparison with one of Salomon's. Perhaps the best explanation is, that they seem to possess a much more extended scale of tones than is generally found in photographs, purer whites, and deeper blacks, with the most complete filling up of gradations. How is all this obtained? you will next inquire. It is by three things: a rare artistic skill in arrangement, not merely to produce well-balanced masses and well-arranged lines by the skilful posing of his sitter, but by the introduction of drapery and other accessories to produce the most harmonious and pleasing chiaroscuro throughout the picture. M. Salomon manifestly directs the mode, to some extent, in which his sitter shall be attired, and he well knows the value of velvet in giving richness and variety of tone. Next, the lighting is magnificent, and admirably calculated in every instance to give the most perfect relief. He is, by profession, a sculptor, in which profession he has, I understand, attained high rank. In any case, its practice has taught him the value of lighting in getting effects. His studio, which he was good enough to show me, is lighted from the north only, with skylight and side-light, the former being of ground glass. The effect is similar to that of Mr. Notman's you engraved some time last year, as the studio in which the hunting scenes were produced. In the third place, the chemical conditions are evidently most excellent. The deepest shadows are literally bare glass, as clear and bright as if small portions had been taken out with a fine chisel. I had heard much of the great extent to which his negatives were retouched, but when I saw them—a rare privilege, for M. Salomon is said to be a reserved, eccentric, and inaccessible man; he is really a man of genius, with probably some of the peculiarities of genius—I found them almost free from touch of any kind, and possessing a wonderful degree of technical merit. Commencing with bare glass, there was every gradation up to a much greater degree of opacity in the extreme high lights than is usually thought compatible with delicacy. The sight of M.

Salomon's prints and of his negatives, is a lesson which I wish portraitists generally could obtain. All this description looks a little like exaggeration; it is not, however, simply my impression, but that of every one. I may add, that the pictures are only 10 inches by 8 inches in size—he takes no others—and the price of a plain uncolored portrait is one hundred francs, equivalent to 4 pounds sterling; duplicates being twenty-five francs each. As he is fully engaged at these prices, your readers will readily understand that the pictures must be something unusually fine in quality.

There are many other very fine displays of portraiture at the Exhibition. The cabinet pictures, styled in Paris "Portrait Album," appear to have become all the rage. In this style, Reutlinger makes the best display of the finest work. There is a good deal of skilfully retouched portraiture exhibited. In landscape nothing exceeds the excellence of the results of M. Soulier and M. Ferrier, both of whom work with collodio-albumen plates. M. Ferrier exhibits some charming instantaneous pictures taken on these dry plates. He informed me that there was no secret about his operations as has been generally supposed; he uses the Taupenot process as nearly as possible in its original simplicity, only taking the precaution to use for instantaneous effects, plates which had not been prepared more than twenty-four hours. In photo-lithography and photo-engraving, France is well represented, the photo-lithographs of Tessie-du-Mothay and Marechal surpassing anything of the kind before produced, the delicacy of half tone almost equalling that of a silver print. The weak part of their process is found in the fact that only about a score of impressions can be obtained before the stone is injured, if not spoiled. Photo-enamelling is also well displayed, both by M. Lafon de Camarsac's process and others. M. Deroche exhibits enamels by a new and secret process, which are quite equal to those of Lafon de Camarsac. Braun, of Dornach, exhibits a large number of exceedingly fine carbon prints by Swan's process, the patent of which he has bought. These are the only carbon prints of any importance in the French department. Mr. Bingham has a magnificent

display of reproductions from paintings, some of which are printed by Woodbury's photo-relief printing process, the patent of which, for France, has been acquired by Mr. Bingham. M. Niepce de St. Victor exhibits some of his photographs in natural colors, which are kept covered up, except for momentary inspection. Amongst the things I looked for and failed to find in this part or any part of the Exposition, were examples of printing on leptographic paper. I am told that it has proved a failure, and has been generally abandoned, which I was sorry to hear.

Leaving France, I found myself, in five minutes, in Prussia, under the able guidance of my good friend, Dr. Vogel, juror for that country. Here we have a very fine display of photo's. Most to my taste are the portraits and pictures of Milsler, who displays much artistic feeling. Loescher and Petsch display the perfection of lighting, and Graf especially, excels in retouching, both on the negative and the positive. Schauer, whose name is already well known in connection with successful reproduction, exhibits one especially fine example, 44 inches by 35 inches, printed from nine negatives. The perfect harmony of tone and intensity, the perfect junction of lines, and the general excellence secured, are highly praiseworthy. Perhaps most interesting in this department, were the contributions of the ingenious Herr Grüne, whose name is already associated with magic photographs, cigar tubes, &c. His application of photographic enamels to pottery, at a price which quite brings it within the category of commercial possibilities, is most valuable; and his method of gilding glass and porcelain by means of photography, at a price very much less than it can be done by the ordinary method, is of immense economic importance.

I will not weary your readers, however, by mere repetitions of names and brief criticisms on these contributions. In Austria some very fine examples of our art are shown, especially the groups of Angerer, both in cards and large pictures. This system of family grouping, although difficult, is interesting, and when I examine the successes of Herr Angerer, I wonder that the

system is so little pursued. A few of the finest portrait photo's in the Exhibition are sent from Warsaw. There are some good ones from Rio Janeiro and some from Egypt. Italy does not shine, nor does Spain. Sweden and Denmark surpass Norway.

Referring last to England, I have said that it was not well represented. But I must state this with a broad qualification. Undoubtedly, by far the finest landscapes in the Exhibition are English. In this branch, we remain pre-eminent. Many of our best portraitists do not exhibit, but still there are many good pictures. Especial processes are not much illustrated. Swan displays some very fine photo's by his carbon process, and Pouncy, some by his, which are black, heavy, and poor, and not so good as I should think the process might produce. Woodbury exhibits some wonderfully perfect photo-reliefs. Robinson's *genre* compositions, Blanchard's instantaneous stereographs and artistic studies, Bedford's, Mudd's, England's, Heath's, and other landscapes, Mayall's enlargements, and a host of others you have heard of before, so I shall not refer further to them now.

An exceedingly interesting feature in the Exhibition is the very extensive application of photography to various commercial purposes; a novel one amongst which, is a series of portraits of persons who, through some injury have lost one eye, first depicted in their maimed state, and then taken after having had an artificial eye inserted. The difference is, of course, marvellous, and, curiously enough, the artificial eye is always much the sharpest. It has not moved at all, whilst the living eye is rarely free from some restlessness. There are, as yet, no photographs of the Exhibition itself published.

### Some Remarks on the Photographic Action of Light

#### And its Relation to Collodions.

BY M. CAREY LEA.

SOMETIME since in writing on the subject of photographing foliage, I made the remark that at least a very large proportion of the photographic effect and impressions produced by leaves upon a bromo-iodized

film, lay in the pure white light reflected from their surfaces.\* I am now ready to carry that opinion yet farther, and to say that all the effect produced by foliage upon our sensitive films, is due to white light reflected from the surfaces of the leaves. I am aided in coming to this conclusion by the examination of some images of spectra received from Mr. Rutherford, and which leaves no doubt in my mind upon the subject.

These prints are taken from negatives exhibited by Mr. Rutherford, to the New York Photographical Society in April, 1866. They were obtained by throwing the solar spectrum upon films of collodion of various compositions, all sensitized in the same bath, and exposed and developed under equal conditions. The dark bands of the spectrum are beautifully rendered, making these specimens to be of the highest interest in every respect.

From these images it appears that no really effective work is performed by any rays except the violet and bluish-violet. The blue rays, and even the violet blue, in many cases produced no visible impression, and when they made themselves visible, it was too faintly to be of much effective value.

It is evident from Mr. Rutherford's images, that the whole effective work upon the film is done by the *violet light*. Now violet light, as such, is extremely rare in natural subjects; hence it follows irresistibly that our photographic work is really done by white light, in virtue of the violet rays therein contained. The colored light emitted by bodies has, for the most part, no photographic value. If a brown wall, for example, or a yellow or red dress, makes an impression on the film, and is not represented by clear glass, it is due altogether to the white light that the wall or other object reflects, mixed with its proper colored light, and which we fail to see by reason of the more powerful impression made upon us by the color. And similarly with other so-called non-actinic colors.

It is commonly said that this or that color is more or less actinic. This is a radically wrong expression, founded upon a general,

\* British Journal, 1865, p. 401.



in fact, a universal mistake, and tending to perpetuate it. Photographic effect upon our bromo-iodized silver plates, is due to the violet rays only; and if the light that comes from green leaves and grass, brown trunks and earth, and yellow stones and flowers, could be deprived of the white surface-light that accompanies the characteristic color, it would leave us clear glass on our negatives. Our eyes are comparatively blind to the white light, which is all that influences our sensitive plates, except in the not very common case of a body emitting violet light as its characteristic color, or as part of its characteristic color.

In none of Mr. Rutherford's images is the faintest trace of actinic action visible under the influence of the green rays. It is, therefore, absurd to suppose that foliage will be any better rendered, by a collodion which is a little more sensitive to rays of a little less refrangibility, than some other collodion. What is really wanted in order to get a good photographic image of foliage, is a collodion *sensitive to faint impressions of light*, in order to catch the effect of every faint ray of *white* light reflected from the foliage.

It is this sensitiveness to faint rays of white light that makes bromine precious in landscape photography, not its supposed capacity for being impressed by the rays of lesser refrangibility. Impressibility by rays of lesser refrangibility, may, and, doubtless, often does accompany sensitiveness to faint rays, but there is no necessary connection.

Mr. Rutherford's results, however, contradict the prevalent belief (as he pointed out at the time) that collodion containing a bromide, is thereby rendered more sensitive to the rays of lesser refrangibility.

In fact, his images may roughly be divided into two classes, 1st, those which show a short and bright spectrum commencing a little below the line G, in the bluish-violet, and extending upwards to the limit of the violet (limit of the visible spectrum), and, 2d, those which exhibit a spectrum of about double this length, by including rays of lesser refrangibility down to the line F, or thereabouts. This additional portion is faint. In some it is combined with a faint

upper portion, in others with a strong upper portion.

What is very remarkable, is that the possession of this lower half cannot be traced to any constituent of the collodions that produced it. For example, collodions No. 1 and No. 3 contain precisely the same bases, cadmium and sodium, and both contain iodine and bromine, and yet one shows the lower half, and the other does not. The proportion of bromine is nearly the same in both, the one contains two grains bromide of sodium to the ounce of collodion, the other  $1\frac{1}{2}$ , that is, the bromide of sodium in the two was in the relative proportion of 13:15, and it was precisely the one which contained most bromide that produced the shortest spectrum.

One of the collodions produced a very long and very pale spectrum, thin, and quite without force. Had any one governed by prevailing ideas, been asked what such a spectrum suggested, as respects the composition of the collodion on which it was impressed, he would have been apt to answer that the collodion was salted with a bromide only, whereas, this result was given by a collodion containing iodide of sodium only.

It will, perhaps, be well if, in future, we give up much speculating as to the effects of color in impressing collodion, and satisfy ourselves with selecting in preference collodions which exhibit the greatest possible impressibility to weak rays of light. In fact, we do this, though not aware of it, when we try collodions by impressing upon them the images of objects of non-actinic colors, for as I have before shown, it is not those colors which in such cases impress themselves, but the faint white light that accompanies them.

If any of my readers doubt that faint white light always, or in the vast majority of cases, accompanies color, he has only to examine a quantity of objects through a piece of glass of any one color. If, for example, a number of objects be examined through a piece of blue glass, all those that send pure red or yellow rays, or mixtures of such, must appear dead black, because no red or yellow rays can pass through blue

glass. But on trial it is found that few, very few objects appear black, almost all taking on some bluish tinge quite foreign to their natural appearance. This is wholly owing to the white light which they emit, the blue rays of which pass through the blue glass and reach the eye. And it is the blue or rather the violet rays of this white light, that impress the plate.

This view, though differing from opinions generally entertained, is only a confirmation and extension of the views expressed in the paper above referred to, as to the agency of white light in producing the photographic impression of green foliage. It is evident that if this be true of *green*, it must *a fortiori* be yet more exactly true for the still less refrangible yellow, orange, and red rays. And it is also evident that our object in all cases must be to use such films as will catch and retain the impressions of the faintest rays of white light, giving ourselves little concern as to what may be the color that accompanies them, except indeed it be blue or violet.

Mr. Rutherford's researches have another very important bearing, in the light they throw upon the achromatization of lenses for photographic use. It follows from the specimens in my hands that the object of the optician must be to throw the line of maximum illumination (which lies between the lines D and E), upon a position a little beyond the line G.

In making photographic objectives, it is not considered necessary to bring all the rays together, as opticians seek to do in making microscopes and telescopes, but only to bring the most powerfully illuminating rays into as exact a coincidence as possible with the most active photographic rays, and this appears to correspond, in the average of cases, to a point a little above G, extending somewhat downwards, and also upwards to about the limit of the visible spectrum.

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SEE that your paper is perfectly dry before you fume it.

## CARBON VERSUS SILVER PRINTING.\*

BY F. A. WENDEROTH.

FOR the last two years we have heard a great deal of Mr. Swan's carbon printing process, and have seen some fine prints produced by it. If photographic journals are the true chroniclers of events transpiring in the photographic world, we must have come to the conclusion that very few, or none at all, of the English photographers have availed themselves of the opportunity to make carbon prints, which Mr. Swan has offered by the sale of tissue and other necessities. Why is this so?

This apathy in taking up carbon printing, to my mind, was a conclusive evidence that the process was not very practical, or not enough so to induce photographers to substitute it for the old silver printing processes.

In consequence of this unfavorable fact, I never felt like losing time to experiment in that direction, until of late, when, by the announcement that Mr. Rowell had produced some fine prints in carbon, I felt like trying my hand at it; but not having seen the working details of Mr. Swan's process, as published by Mr. G. Wharton Simpson, in this journal, I had to find out everything for myself, and if my prints are not yet as good as they ought to be, I hope to be able in a very short time, to produce them equal to any.

In considering carbon printing *versus* silver printing, four points present themselves for consideration.

*First.* Stability.

*Second.* Facility of production.

*Third.* Cost.

*Fourth.* Application for retouching, painting, &c.

*First.* A carbon print consists of a more or less thick layer of gelatine, and some coloring matter, resting on the surface of paper.

Some of the earlier productions of Mr. Swan have detached themselves entirely from the paper, and have contracted so

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\* Read before the Philadelphia Photo. Soc., June 5, 1867.

that it is difficult to make out what they are. This, perhaps, can, and has been, overcome by different modes of mounting. There is, at least, no reason why it should not be accomplished successfully; time alone will tell.

The chief claim for permanency lies in the unalterable character of the coloring matter, but which in Mr. Swan's productions is questionable, if he, as Mr. Simpson says, and as the tint of his prints indicate, uses crimson-lake with the carbon, which is one of the most fugitive coloring pigments known.

A silver print is not *on* but *in* the paper, to a large extent, and is one and the same thing with it; it cannot be easily injured by water or friction; it is a dye. The picture is therefore, safer from injury than one that rests only on the surface, and I think that a carefully made silver print, with the application of some preservative, can be made as permanent as a carbon print.

*Second.* The carbon tissue is either used as sensitized at once, in which state it is almost as unstable as silver sensitized material, or it is sensitized afterwards. In both cases it is dried by low temperature, otherwise the gelatine will grow soft, and render it useless by making it uneven. Assuming that the tissue has been bought unsensitized, it is to be sensitized on the evening before the day it is to be used, because the drying takes from six to eight hours.

The second operation is the printing, and here lies one of the great drawbacks of the process. This printing is all guesswork. It is true that it might be performed with some amount of certainty when the negatives are nearly uniform in density. With my own tissue I print from good negatives in four to five minutes in the shade, on a clear day, and double that time in cloudy weather. This great sensitiveness is almost a disadvantage, as a little too long or too short an exposure proves not a little, but a big thing in the developing, as an imperfectly timed print will never come out like one that has just had the right time. It is a great deal easier in a silver print to remedy shortcomings in the printing.

The tissue has (through the operations prior to the development), to be very care-

fully handled in regard to light, as one glimpse of daylight will darken the high lights, and there is nothing that will restore them. Printing in the sun is too hazardous, except when there is a number of prints to be made from the same negative. In a silver print we can watch the progress and humor it, and get just exactly what we want.

The third operation is the varnishing of the print, and of a piece of Saxe paper.

The fourth operation is to press both together, and to pass them through a press to make them adhere firmly. This is easy enough for small prints, but quite a job for large ones, and can only successfully be accomplished after a good deal of practice.

Coming from the press, the fifth operation is to trim the edges with scissors, otherwise the gelatine might detach itself during development.

The sixth operation is to put the print into warm water.

The seventh operation is to detach the tissue paper from the gelatine.

The eighth operation is to take the print, when fully developed, out of the warm water and put it into cold. When properly timed, and with good tissue, the development can be accomplished in from one-half to one hour, but by overtuned prints it might take from six to twelve hours. There is no necessity to soak the print after development in cold water for any length of time, as the bichromate is fully washed out when the print is developed.

The ninth operation is to take the print from the cold water, rinse it carefully or pass a soft brush over it, and hang it up to dry, but without artificial heat, otherwise it will tear and split; this drying will take from four to six hours.

The tenth operation is to cover the print with a thin layer of gelatine, then hang up to dry, which takes from one-half to one hour.

The eleventh operation is to dampen a piece of paper, put the print on it, and pass it through the press.

The twelfth operation is to remove the Saxe paper on which the print has been developed, by moistening it with naphtha.

The thirteenth operation is to immerse



the print for five minutes in a solution of alum, and then hang up to dry, which will take about one hour.

The fourteenth operation is trimming and mounting like a silver print.

To resume, we have fourteen operations, to be accomplished in from fourteen to twenty-four hours.

In silver printing, assuming that the paper has been salted or albumenized, the first operation is the silvering, which, as the drying can be done by artificial heat, can be accomplished in from one-quarter to one-half hour.

The second operation, when albumen paper is used, is the fuming, time from five to fifteen minutes.

The third operation is the printing, requiring from five minutes to one-half hour in the sun.

The fourth operation is the washing out of the unaltered silver in from ten minutes to one-half hour in running water.

The fifth operation is toning, five to ten minutes.

The sixth operation is immersion in the soda bath, time ten minutes.

The seventh operation is washing for three hours in running water, after which the drying takes place, from twenty to forty minutes.

The eighth operation is mounting in the common way.

We have here eight operations accomplished in five hours and a half, against fourteen operations, and fourteen to twenty-four hours' time.

*Third.* As carbon printing in this country is already doubly fettered with patents, and as the patentees have covered every imaginable, possible and impossible mode of covering, not paper only, but other materials, with gelatine bichromatized, for photographic purposes, we shall be obliged to buy permission to make the tissue, or to buy it from the patentees.

Charging only fifty per cent. higher than the highest price of albumen paper, which is \$60 per ream, we have \$90 for tissue.

We have next for each print two pieces of Saxe paper for transferring and mounting, each a little larger than the tissue paper, requiring for each ream of tissue two

and one-tenth reams of Saxe paper, at \$25 per ream, making \$52.50. Eight ounces of the hydrocarbon varnish will be required for every four sheets of tissue and Saxe paper, using one hundred and twenty times eight ounces for every ream of prints.

Not knowing what the price of this article will be, I will put it down to fifty cents per eight-ounce bottle, or \$60 in all.

For every eight bottles of the hydrocarbon varnish, we have to use one bottle of the transferring solution, at twenty-five cents per eight ounces, making \$3.75. The gelatine for mounting one ream of prints, will amount to at least twenty boxes, at twenty-five cents each, or \$5.

An important item is the gas used in keeping the water warm, and giving light to work by.

Supposing eight sheets, 18 × 23 inches, of medium sized prints are worked off per day, which will be more than many men can accomplish, it will take sixty days to work off one ream of tissue, for which three gas flames are used at twenty-five cents per day, or \$15 for each ream of pictures.

Waste in mounting boards for pressing purposes, for one ream of tissue, \$2, giving a total of \$228 for material for one ream of pictures.

For silver printing we have one ream of albumenized paper at \$60, and, calculating that for each sheet thirty grains of nitrate of silver is used, gives sixteen sheets to one ounce of nitrate of silver, or thirty ounces for each ream, at \$1.25 per ounce, or \$37 in all. Chloride of gold and hypo. of soda, for one ream of prints, \$30; and starch for mounting, \$2.00. In the calculation for silvering and fuming, I omitted to make allowance for ammonia and nitric acid, which I will put down at \$10 for one ream of prints.

Total, \$139 for one ream of silver prints, against \$228 for carbon.

The fourteen operations of carbon printing requiring fourteen hours, and the eight operations of silver printing only five hours, we have triple cost of manual labor, as we have to employ three times the amount of help to finish, in a given time, the same amount of carbon prints as of silver prints.

Therefore, carbon prints should be sold

for double or triple the price of silver prints, or it will be a bad-paying business.

The fourth point to be considered, is, adaptability for retouching, coloring, &c., &c. This is, at the present time, when the demand for retouched and colored work is very large, of great importance. A leatherified carbon print repels water-colors even more than albumen silver prints, and makes, therefore, retouching and coloring near to impossible. But particularly impracticable is the carbon process for the reproduction of Daguerreotypes, or such pictures where false or new backgrounds have to be introduced, or figures left out, or others be put in, or other alterations made. For all this kind of work carbon prints are out of the question.

All these points considered, I understand now, well enough, why carbon printing has had so few votaries.

I think, therefore, that carbon printing will not soon come into general use, and I, myself, for GENERAL WORK, prefer silver printing.

In one point carbon prints are superior to silver prints, that is, in rendering the details of light-colored objects with a delicacy which we seldom find in silver prints.

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## THE CARBON PATENTS AND THE PROCESS.

OUR readers have doubtless felt much interest in the carbon process of late, and some of them have gone so far as to experiment with it. When we told them, however, that it was patented, some became affrighted, and hid all traces of their experiments, having previously had some unpleasant transactions with photographic patentees. Not feeling quite assured ourselves on this point; and desiring to give reliable information only to our readers, touching it as well as all things else, we proceeded to investigate the matter, and, through information obtained at the Patent Office, from Mr. Rowell, and Mr. Swan, we are authorized to say to our readers, that they may experiment all they please for the present, without fear of procedure against them for infringement, provided they buy the tissue made by

either of the patentees, and do not make their own.

In our issue for November, 1864, Vol. I, page 166, we printed the specifications of Mr. Swan's patent in England, which are the same as those of his American patent, given January 22, 1867, and a printed copy of which any of our readers may obtain from the Patent Office. We had long been hoping for the opportunity of trying Mr. Swan's process, but could obtain none of his tissue or the process to work it, until recently. What was our surprise and delight then, upon hearing the announcement of an *American* carbon tissue, the process for making which, had been patented February 19, 1867, by Mr. John C. Crosman, of Boston, who was aided in the production of prints upon it, by Mr. Frank Rowell, 125 Winter Street, Boston. The query arose, will these patents conflict? We feared they would, and others feared so, hence our investigations.

A brief synopsis of the specifications of the two patents will not be out of place here. Whether Mr. Swan's patent is valid or not we will not attempt to argue. *He has a patent*, but whether it could be sustained or not we cannot say; we have our doubts about it, though they may be unimportant. However, Mr. Swan is duly and justly entitled to recompense for his device for *transferring* carbon prints, if for nothing else, in this country. It is probable that the reason we could obtain none of his tissue, was that he feared to have the process "well known" here before obtaining his patent. That prints *were* made, however, several months before he even *applied* for a patent, we are assured. But enough of this. Mr. Crosman's patent is given for an "Improved process of coating sheets of paper and other material with solutions of chemical salts" only, and not for a process for working paper so prepared to produce photographic prints. It reads, condensed:

"My invention relates to a process by which sheets of various material, such as leather, cloth, paper, &c., are covered by a coating applied in the form of a fluid, or a fluid solution, in such a manner that the resulting coating will be smooth and of uniform thickness, and so that when the solution applied contains chemical salts, these

will be equally distributed over the surface which is so covered. Said process consists in first thoroughly moistening or saturating a sheet which is to be coated, which I do preferably by immersion in suitable fluid, which may be cold or heated, according as one or the other condition is best adapted to produce the desired effect; then, in depositing the dampened sheet on a level table, and by suitable manipulation causing the sheet on its under side to come into contact with the upper surface of the table, by expressing air and any free fluid from between the sheet and table; and also, where found necessary, removing superfluous fluid from the upper surface of the sheet, by application thereunto of bibulous paper, or other suitable absorber or remover; and finally, in applying to the upper surface of the sheet, when in the condition produced by the second operation, a fluid material, or a fluid solution of the material or of the mixture, with which the said surface is to be coated. In practice the level table-top should be made of substances not changeable in form on the application of fluid, and glass, slate, marble, or metal, may be used, though I prefer glass.

"In applying the solution, which, upon drying, forms the desired coating of the sheet, and where the solution is of such a nature that but a small quantity will leave or deposit the requisite coating, I proceed in the manner of water-color artists when laying broad washes of flat tints. But when a considerable quantity or depth of fluid is required to make the desired coating, I then make use of such a frame as paper-makers term a deckle (the bottom of which may be faced with rubber), placing it on the top of the table around the paper, the edges of which the inside of the frame nearly touches. I then pour on the paper a suitable quantity of solution, which gravitates into uniform depth on the paper, it being prevented from flowing off from the paper by the deckle. In some cases the distribution of solution may be aided by the operator's use of a brush.

"In applying the solution, use may be made of a reservoir, caused to traverse over the table, and delivering the solution uniformly over the breadth of the sheet while

so passing; and, if desired, the solution may be made to flow into or upon a brush attached to said reservoir, and coming into contact with the sheet, while the amount of the solution delivered may be made to depend upon a suitable valvular arrangement, and the speed with which the reservoir is moved. With this reservoir may be employed the deckle, especially if considerable depth of solution is to be left upon the surface of the sheet.

"While this process was devised by me with reference to the preparation of paper for use by photographers, I do not by any means consider it as limited to such use, as sheets of material may be coated in the manner described with alcoholic, aqueous, alkaline, or acid solutions, or with fused resins, oils, varnishes, or paints. But care must be taken to have the fluid, with which the sheet is saturated, one with which the covering, or coating solution, or fluid has an affinity.

"The object of thoroughly and uniformly saturating the sheets before applying them to the table, is to cause them to lie flat thereupon, so that, if the sheet is of uniform thickness, there will be no valleys in which the deposit of coating matter will be thick, or hills on which it will be thin."

It will be observed that this is only a patent for making the tissue, which has to be worked by Mr. Swan's process, and differs particularly from Mr. Swan's method in the wetting of the paper previously, and in the use of the deckle. Mr. Swan pours his gelatine compound on sheets of glass, leading it over by a glass rod, first coated with ox-gall or collodion, so that the sheets may be readily separated from the plate. Damp sheets of paper are then applied, and the tissue removed from the glass, when it is ready for sensitizing and use, according to the process herein described.

Mr. Swan's claims are briefly:

1st. The preparation and use of colored gelatinous tissues, substantially in the manner, &c., for the purpose set forth.

2d. The mounting of undeveloped prints obtained by the use of colored gelatinous tissues in the manner, &c., &c.

3d. The re-transfer of developed prints,



produced as described, from a temporary to a permanent basis.

Our readers now see where the confliction *might* be if we worked Mr. Rowell's tissue by Mr. Swan's process. However, there is no danger of a contest. With a desire to avoid litigation, and to do what would compensate Mr. Swan for his skill and ingenuity, a proposition was made from this side to him, which has been graciously accepted, and which has resulted in a compromise and combination of the two patents. As the result, we shall soon have "The American Carbon Tissue Manufacturing Company," in full blast, and, we hope, doing a fine business. Meantime, let us express the hope that the company will enable us to use the process at pleasure, without the necessity of paying for a license. They monopolize the manufacture of the tissue. Let them charge what seemeth good for that, but not for a license. Nothing will debar the progress of carbon printing sooner. We do not know that they contemplate it even, but we *hope* not. Mr. Swan charges very high. We are not now likely to be trammelled by conflicting patents. *Free us from license fees, and carbon will go.* Some doubt has been expressed as to the practicality of the process. The question as to whether it is, or is not practical, can only be settled by the results of experience. We find it quite practical and easy ourselves, requiring only ordinary attention.

Our friend, Mr. Simpson, editor of the *Photographic News*, states that he has seen the process in satisfactory and successful working in Mr. Swan's establishment, men, women, and boys being employed without any previous knowledge of photography. Also that he had made some dozens of prints without difficulty or failure.

Mr. Cherrill, a photographer and correspondent of the *News*, states it as his conviction, that carbon printing is quite as easy and more philosophical and satisfactory than silver printing.

At a late meeting of the Glasgow Photographic Association, the conversation turned upon the carbon process, and ended as follows:

Mr. Dodds: "Does the process not require practice or dexterity?"

Mr. Stuart: "Not in the least. If anybody gives me the tissue, I will undertake, by this carbon process, to produce satisfactory prints. There is nothing in any of the other parts but what a boy in a photographic establishment might do. I am quite astonished this process should be in such perfection, and photographers be hanging on so long."

Mr. Wenderoth, in his paper, relates a different experience. He tried to make his own tissue, however, and we think many of his troubles were owing to that fact, though he exhibited some exquisite carbon prints made by himself on his own tissue. He has gone to considerable pains evidently, to make his calculations, but it is hardly fair to make comparisons yet. As far as we are concerned, the process is in its infancy here. It is novel and new to us, and, of course, will take more time than it will when it is brought to a state of greater perfection, and we become more used to it. Mr. Wenderoth has multiplied the manipulations to rather an unnecessary extent. He calls putting the prints in the warm water one operation, and pulling them apart another, whereas, he forgets that this part of the process is identical with toning, and takes but little longer. He says there are only eight operations in silver printing. Counting as he does, we make twelve, without counting the number of times that most people have to change their prints from one water to another.

As to the printing being all "guesswork," one with judgment can soon learn to "guess," and the short-comings in printing, if they can be overcome at all, are sooner overcome. It does not take "six to twelve hours." If a print is very much overlighted or underlighted, there is no use of trifling with it.

As to cost, we are assured by Mr. Rowell, that the cost will be about the same as the best albumen paper process. It is hardly right to calculate it yet. If the process is *not cheap*, why it will prove to be what we are working for. It has many advantages over silver printing, which we have mentioned heretofore. True, it has some disadvantages, but, when we can secure such lovely softness, exquisite detail and half tone, with permanence, is it not worth while

to try to overcome these objections? The time is coming when the best work will be made in carbon. What we want, is a *direct* process, and it will come sooner or later.

We had prepared a few hints on the working of the process, but having just received a parcel of tissue from Mr. Swan, we will try it first, and have more to say in our next. Meantime, get some tissue; see what you can do, and let us compare notes.

The true way to simplify the process, is for every good man to give us the benefit of what he finds out, and let us disseminate it.

Follow with ordinary care, the instructions, and you will be pleased with the elegant results you will achieve.

### TO A CLASS OF TROUBLED PHOTOGRAPHERS—V.

At our last meeting you were instructed somewhat as to salting and sensitizing paper. I will now give you such instructions in printing positives, as experience has taught me to be the best adapted to most of the paper procured at the stock depots. The ammonio-nitrate of silver solution being the one most generally used, I shall confine myself to it in this instance, believing it to be the most successful that can be used, as well as the most economical.

#### SALTING SOLUTION FOR PLAIN PAPER.

Water, . . . .	4 quarts.
Chloride of Ammonium, .	256 grains.
Gelatine, . . . .	100 "

Dissolve the gelatine in the water by the aid of heat, then stir in the chloride of ammonium until dissolved; when cold, filter for use. The sheets of paper should be immersed in the solution, taking care to avoid air-bubbles, allowed to remain two minutes, and then hung up to dry.

#### SILVER SOLUTION FOR PLAIN PAPER.

Pure Rain or Distilled Water, .	9 ounces.
Nitrate of Silver, . . . .	1 "

Dissolve the silver in the water, and separate three ounces of the solution from the rest, to which add liq. ammonia until the oxide of silver formed is redissolved, and

the solution is again clear; then add it to the remaining six ounces of solution. Oxide of silver will again be formed, which can be allowed to settle to the bottom of the bottle and remain there until the solution is all used. This can be applied to the paper with a swab of cotton-wool or canton flannel. A portion of the silver solution should be filtered every time you wish to use it, otherwise you will have a marbled appearance on the paper, caused by the scum which collects upon the surface of the solution. Care should also be used to apply the solution evenly and lightly, otherwise you will roughen the surface of the paper.

Prints intended for coloring; copies from other pictures that may need retouching, &c., are usually made on this kind of paper. We do not advise you to albumenize your own paper, but if you so desire it will be useful to have this

#### FORMULA FOR ALBUMENIZING PAPER.

Whites of Eggs, . . .	64 ounces (fluid).
Water, . . . .	6 " "
Acetic Acid, No. 8, . .	2 " "
Chloride of Ammonium,	650 grains.

Separate the whites of the eggs carefully from the yolks, into a large evaporating dish or other suitable vessel; then dissolve the chloride of ammonium in the six ounces of water, and add it to the albumen; finally, add the acetic acid. It should then be beaten until all the albumen is converted to a stiff froth, and then set aside in a clean cool place for twenty-four hours to settle, after which filter it through a flannel bag or very fine sieve, and it is ready for use. Great care is required in floating the paper upon the albumen to prevent air-bubbles, but a little practice will soon make you perfect. Every time before commencing to albumenize, draw a couple of strips of clean paper over the surface of the solution, to take away any scum that may have accumulated, while not in use. The paper should be allowed to remain upon the solution until it lies perfectly flat and even, which will take from two to three minutes. The room you albumenize in should be clean and free from dust, and your paper should hang to dry across long poles from one and a half to two inches in diameter.

When dry it should be carefully spread out one sheet upon another, and placed under a press or heavy weight for a few hours, after which it will be ready for use.

#### SILVER SOLUTION FOR ALBUMEN PAPER.

Water, . . . 16 ounces (fluid).  
Nitrate of Silver, . 2 "

Dissolve the silver in the water, and separate one-fifth ( $\frac{1}{5}$ ) from the rest. To this add liq. ammonia until the brown oxide of silver is redissolved, after which it should be added to the remaining four-fifths. Oxide of silver will again be precipitated; this should be redissolved again with chemically pure nitric acid, being careful not to add too much. This will leave the solution slightly alkaline, and I have never known it to turn red, unless it is allowed to get exhausted. As the solution becomes reduced in strength always add pure crystals of silver, and not a stronger solution of ammonia as some recommend, as in that case the ammonia soon becomes in excess, and is liable to dissolve off the albumen. The proper plan to adopt is, as the solution is reduced in strength, to add pure nitrate of silver, and, when it is reduced in bulk, to make a fresh supply according to the formula, and mix them together; this will keep your solution at a certain standard all the time. Your paper should be floated from one to three minutes, according to the density of your negatives, and fumed from five to twenty minutes, according to the structure of your box, and the temperature of the atmosphere.

The criterion of a good print, as I said at our last meeting, is that it should be floated long enough to produce a clear and even picture, without any mottled appearance in the background; it should also be a little bronzed in the deep shadows, and it should be fumed long enough, that, when printed, it should have a rich purple tone. In many cases, half a minute will be found sufficient to float the paper upon the silver, and, in some cases where the negative is very dense, the print will be improved by omitting the fuming altogether, for, fuming the paper with ammonia not only increases its sensitiveness, but increases the intensity of the prints also. Now, supposing the prints are

made and well washed to eliminate all free nitrate of silver, proceed to tone them in the following

#### TONING BATH.

Water, . . . 32 ounces.  
Acetate of Soda, . . 60 grains.  
Table Salt, . . . 60 "  
Chloride of Gold, . . 4 "  
Nitrate of Uranium, . . 4 "

The gold and uranium, both having an acid reaction, must be neutralized with bicarbonate of soda separately, before being added to the bath. Where a warm, brown tone is desired, the uranium may be omitted. This bath should be made several hours before use. But a few prints should be toned at a time, and they should be kept agitated while in the solution, for, if they rise to the top and remain there for a minute or two, a red patch will be the result, and the picture spoiled. Air-bubbles between the prints will also cause red spots. To prevent these, lay your prints in, one at a time. After toning, they are fixed in the following

#### FIXING BATH.

Water, . . . 32 ounces.  
Hyposulphite of Soda, . 5 "  
Carbonate of Ammonia, . 1 "

The prints should remain in the above solution for fifteen or twenty minutes, according to temperature, and constantly turned over singly to insure thorough fixing, after which they should be well washed, until every trace of hypo is removed. There may be nothing new to you in what has been said, but it will not be out of place to preface thus a few remarks upon the imperfections of paper-prints and their causes and remedies, as far as my experience has taught me. Many of the prints which you have brought with you are very imperfect, and give evidence of the following troubles:

1st. A mottled appearance on the paper after coming from the printing-frame. This is generally caused by the paper being insufficiently silvered, but sometimes arises from an inferior quality of paper, which imbibes the silver unevenly; if caused from a lack of silver, the paper will print better on the end of the sheet of paper which is lowest when hung up to dry, because the silver



running down the paper concentrates in drying, thereby leaving a larger quantity of free nitrate in that part of the sheet. If the paper itself is in fault, the mottled appearance will be evenly distributed all over the paper. The remedy is, to float your paper longer, if it is under-silvered, providing you are floating less than two minutes; if you are floating it that length of time or more, strengthen your solution about ten grains to the ounce, and try it again. When the paper itself is in fault, it is generally in the sizing; lay it in a damp place for some time, until the sizing gets softened; it will then absorb the silver solution better.

2d. The prints have red marbled lines, and a quantity of minute red specks after toning, but not visible before. There is no remedy for such paper. It is badly albumenized; the lines are formed by the albumen running unevenly down to the edges of the paper, and the red specks by dust settling upon the surface of the albumen, also upon the surface of the paper when drying. Minute air-bubbles in the albumen are also a frequent cause of red specks in the paper. All such paper, if very bad, should be rejected at once.

3d. The paper has a marbled appearance after silvering. This is caused by dust and scum floating upon the surface of your silver solution. Always filter before use; and if your solution remains in the dish any length of time, draw a couple of strips of paper over it to remove the scum.

4th. Red patches formed during toning. This is caused by the prints being allowed to rise above the surface of the solution, by two or more prints sticking together, and by air-bubbles forming between the prints. The remedy is, to tone but a few at a time, and keep them moving in the solution.

5th. Defective toning. When the prints are red after fixing, they have been insufficiently toned; when a cold blue, they have been excessively toned; when prints are toned to a blue, and get very red in the hypo, your gold bath is too strong, the gold attacking and toning the surface before it has time to penetrate through the print. The remedy is obvious for this.

6th. Your finished prints have a dark mottled appearance, when viewed by trans-

mitted light. This is caused by imperfect fixing; either your hypo solution is too weak, or you did not leave the prints in it long enough; they should be left in the solution until you can see nothing but the fibre of the paper in the white parts of the print when held up to the light.

7th. Yellowness of the prints when finished. Several causes will produce this, such as leaving the prints in the hypo longer than necessary to clear them; acidity of the fixing bath (this can be avoided by using carbonate of ammonia with the hypo, as given in the above formula, or where this cannot be obtained, a little bicarbonate of soda or a drop or two of ammonia, will neutralize all acidity); the hypo bath used until decomposition takes place. This is a fruitful cause of yellow prints; you should never use it more than twice, and it is much better to make it fresh every time. Extreme warm and sultry weather will sometimes turn some samples of paper yellow beyond redemption. The same effect is produced by keeping paper some days between the time of sensitizing and printing.

8th. Yellow patches and stains. These are caused by careless manipulations, such as finger-marks upon the surface of the paper; washing your prints in imperfectly clean dishes, or in the tank that received the prints from the hypo the day before; hypo on the fingers while toning. If there is the least trace of silver in the tank when it receives the prints from the hypo, they will all be stained, and *vice versa*. If there is the least amount of hypo in the water while washing the silver out of your prints, they will be stained. To know the above causes, is to know the remedy, which is to have a sufficient number of dishes; keep them perfectly clean, and particularly keep your hands also clean.

9th. Metallic spots. There is no remedy for these. They are caused principally by metallic substances being ground up accidentally with the rags in the manufacture of the paper.

10th. Loss of albumen from the paper during silvering. Your silver solution is too weak, or, perhaps, too alkaline on account of an excess of free ammonia.

11th. Prints refuse to tone. This is often

the fault of the paper, or may be caused by keeping the prints too long, in warm weather, between the printing and the toning, or by traces of hyposulphite in your toning bath, carried by your fingers or otherwise.

Lastly, mealiness. A great many blame the paper itself for this defect, but I have never yet had a paper that, with careful manipulation, gave me mealy prints. By adopting the following methods, however, I can produce it upon any paper: By printing from a very weak negative; by floating the papers upon a very weak solution of silver; too much gold in the toning bath; acidity of the toning bath; using the toning bath immediately after making it; and finally, too little gold in the bath. Washing the prints too long before toning, also tends to make them mealy, besides being injurious in other respects. If you avoid the above causes, you are very apt to avoid mealiness.

It is hardly worth while for me to say more to you. The season is now at hand when you should be quite busy, and many of you will doubtless be privileged to enjoy a few days of work out of doors. We have talked together over most of the troubles that are likely to occur in our daily practice. If any have been forgotten, I trust I shall hear from you during the summer, and will be glad to aid you in any way you can suggest. I thank you for your kind attention at our meetings. To me they have been a source of pleasure as well as of much profit, and I almost regret that there are not more troubles, in order that we may have more to talk about. I need not charge you to be careful and neat in cutting out, mounting, and rolling your prints. Much depends upon this, as you have observed.

Forget not what has been told you, and may the Giver of all good prosper you. Farewell.

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### Remarks upon Landscape Photography and Apparatus Employed.

As many of our readers are about to enjoy a little of out-door work this season, the following paper, by Mr. Edward Dunmore, read at a late meeting of the North London Photographic Association, will be read with

interest. We would also call the attention of those who desire a tent, to the plan suggested in our second volume by Mr. Carbutt, which we know, from experience, is good. After some preliminary remarks, Mr. Dunmore says:

"This evening I purpose calling your attention to a few expedients connected with out-door photography, which I do not presume to assert are at all new, but are simply convenient plans for obtaining photographic pictures in the open air—plans, perhaps, already adopted. Even should it be so, I think discussing the subject far from bad policy, even if it elicit no further improvement, especially at the commencement of the photographic season.

"In the first place, we will take the photographer's *sine quâ non*, namely, the tent, into consideration. We will presume the nearer this article approaches in convenience and arrangement to the permanent operating room at home, the more likely is it to give satisfaction. Excellent contrivances in this way are legion, each having some peculiarity of its own, and few without some objection, if not in construction, at least in expense—to many photographers a serious consideration, but to those blessed with an abundance of 'filthy lucre' it of course does not so much matter. At any rate, a cheap, serviceable tent is not to be despised.

"A tent that will answer every purpose for wet plate work can be thus made: The diagram I have brought with me will explain my meaning better than any wordy description. It comprises an ordinary box, which, with little expense and trouble, can be made to answer every purpose well. I say well, for I worked in a similar one three weeks of the most wretched weather for photography imaginable last season, and had no complaints to make.

"By referring to the diagram, it will be seen that the box is raised on wheels, attached to axles of a convenient length to pack *inside* the box when it is not required for use, as in travelling by rail or otherwise. When wanted, they are fixed in place by a couple of thumbscrews, and the wheels *pegged* on. I used nuts and screws at first, but found trouble with them, as they were

apt to come off when wheeling it over rough roads. On arriving at the ground you intend working upon, the box is pushed into a convenient position, as much sheltered as

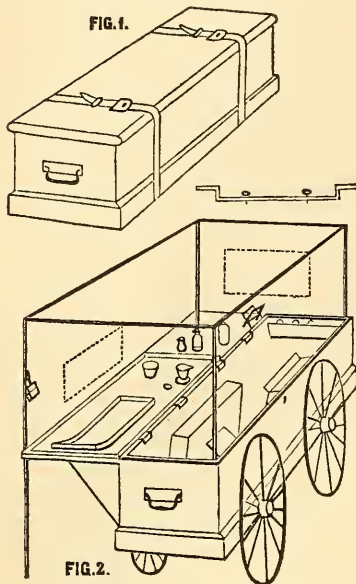


Fig. 1. Tent packed for travelling. Outside measurement  $2\frac{1}{2}$  feet long,  $1\frac{1}{2}$  feet across, 1 foot 3 inches deep.

Fig. 2. Tent with covering removed and arranged for work. Space for working, 3 feet by  $2\frac{1}{2}$  feet, 3 feet high, added to the capacity of the box itself. The dotted lines show the position of window.

possible, the lid opened, which will form the operating table, and upon which is placed a shallow tray, made of some light but strong and waterproof material. A hole is made in one corner and placed over a corresponding hole in the lid (or operating table), and the neck of a gutta-percha funnel is thrust through both holes firmly. This serves to pour away waste solutions and keep the tray in its place. Light wooden rods are then fixed in each corner, joined by ferrules like fishing rods, to make them the proper length, and to pack in the box when operations are finished. Some flat strips form the framework of the top, and are fastened in place by pegging them to the uprights by long, brass-headed nails. These being adjusted, a bag made of a material called 'black duck,' and lined with yellow calico, is pulled over all like a nightcap, and

tied light-tight by passing a cord round it outside and just below the table. The end intended for ingress and egress, is formed by two loose curtains overlapping each other, which, after admitting the operator, are tucked into loops of tape on each side of him, which will effectually exclude white light. The bath stands in the deeper part of the box, as do also the plates and plate-boxes. A small shelf holds the chemicals, and a bag the dusting brush. Ample room is afforded for all the necessary materials without overcrowding, danger of being overturned, or one solution being spilled into another.

"I prefer to use a developing dish; it prevents so much wet and dirt, and there is much more chance of getting an equally developed plate than when it rests on the naked fingers. A flat tin-can for water supply, with a cord and hook for obtaining water where it is difficult of access, a good-sized sponge, and a few cloths added to the material, will be found useful.

"It saves much time if the plates are cleaned and polished ready for use at home, so that they shall require nothing more than the application of the brush before use on the field. If I should recommend photographers never to put a plate that has been developed, however well it may be drained, into the *same* box with the clean plates, it might seem an unnecessary piece of caution; but I have seen it done by very good photographers. The results were, of course, what might have been anticipated by the exercise of a little forethought. Smears and stains, caused by the condensation of moisture upon the polished surfaces of the plates, and made into streaks by the brush, are of common occurrence, especially in hot weather.

"In my practice I have found a piece of damp yellow calico far superior to pink blotting-paper (which cannot be used many times without tearing), for the purpose of putting at the back of the sensitive plate in the dark slide, to prevent unequal drying or blurring of the image. The calico will be found to last a long time, and improve by use rather than otherwise.

"We all know that when the plate is once in the dark slide, too great stress cannot be



laid on the necessity of always keeping it with the same end upwards. If this be neglected, it is ten chances to one but there will be stains on the negative from silver solution that has accumulated on the lower part of the slide in the first instance, which, by reversing the position of the plate, runs over it in streaks. For *this* reason the camera should be carried by straps that are *separate* from the camera, and that can be altered to suit circumstances, in preference to one strap permanently attached to one side of the camera *itself*; which has, moreover, the objection of causing the side to which it is attached, to bend outwards by reason of the weight hanging upon it, and which, after some use, will be found to retain the bent form thus given, to the injury of the apparatus. The slighter and more portable the camera, the more easily is it injured in this manner. My remarks apply especially to large apparatus; but I doubt not smaller instruments would suffer more or less from the same cause.

"A modification of the tent for working dry plates, or any plates that are *only* exposed and changed in the field, the other operations being reserved for home, is very simple and effectual. Thus: three light rods of bamboo or other material are required—two of them shod with iron for driving in the ground, and the third to lay across the top, and fastened to each upright by pegs or otherwise. When these are fixed, a large sheet—impervious to light, except at a window let into the material, of yellow—is, when required for use, thrown over the operator, frame and all. The window is allowed to fall between the uprights in front, to supply the light in the proper position. The operator can very easily adjust the sheet when underneath it, so that it will keep out the white light, the frame in front at the same time preventing it from incommencing him during the process of plate-changing. When not required, it can easily be folded and strapped round the plate-boxes and frame for carriage. If waterproof, it forms a capital protection during a shower of rain.

"I have not tried a sheet made expressly for the purpose, but I know that it would answer well for my tent-covering; and a

branch cut from the nearest tree did, when used in a similar manner, though it would be a sorry makeshift compared with a sheet constructed expressly for the purpose. It would possess the great advantage of not harboring dust—a *very* important consideration when plates preserved in a moist state by glycerine are used, as dust is the most troublesome enemy to this process. Avoid dust, and no process can be more satisfactory, stickiness excepted. By taking great care, and always wiping out the camera and dark slide before use with a damp cloth, this difficulty can generally be overcome.

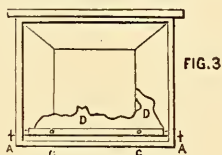


FIG. 3.



FIG. 4.

Fig. 3, represents the end of the camera containing the focussing glass, with arrangement for securing the sky portion of the landscape. A A, milled heads fixed to the end of a brass rod that passes through the camera, and to which is attached two strips of metal, opened or closed by the binding screws C C, for the purpose of retaining a piece of paper, D D, torn to the shape required.

Fig. 4. A A A, light rods of bamboo or other wood, made to peg into the ground and form a frame, supported by the struts D D, which are hinged to the uprights A A for the purpose of obtaining rigidity. B is a window of yellow material. C C C C, pegs for the purpose of fastening the cloth to the ground. D, dark slide. E, plate-box.

The camera-stand I prefer is the tripod, that will fold up flat and compactly when not wanted, with a metal triangle top. A good plan was suggested in one of the journals, viz., of attaching a stout cord to the triangle under the camera, terminating in a

loop in which the feet can be placed. By pressure so applied, the apparatus can be rendered very firm and steady in a gale of wind—conditions much oftener required than secured. This plan is, however, an easy and effectual remedy, and certain cure for wind on the camera.

"A zinc plate-box, with moistened blotting-paper at the bottom, will be found the best receptacle for damp, unfinished negatives. It will keep them uniformly moist till required for the last process—that is, fixing. Avoid *filling* the box with plates; one in each alternate groove is sufficient, or there is every chance of injuring the film, on account of the excessive thinness of the septa, when the grooves are constructed of metal. I believe gutta-percha grooves are supplied by the dealers, although my boxes contain the objectionable metallic ones.

"A piece of India-rubber attached to the lower end of the dipper for the silver bath, also a band round the top—should porcelain or glass dippers be used—will be found useful to lessen the risk of breakage either of them or the bath. Never venture on a trip without materials for a new supply of solutions in case of accident, if only for a few miles, for they seem very long ones if you have no time to spare for the journey.

"A plan for controlling the exposure of the sky portion of the landscape, that will answer well, is by constructing a flap to work *inside* the lower part of the camera by means of buttons on the outside. The upper edge of this flap consists of paper torn to correspond with the general outline of the landscape; this is easily managed by examining the effect on the focussing screen, and tearing the paper accordingly. I have used paper gummed on one side and attached it to the permanent portion of the flap by moistening it with the tongue. In preference, I should suggest that two metallic strips hinged on to a brass rod, and opened or closed by binding screws for the insertion or removal of the paper, would be a more elegant contrivance, and the cost would be trifling. No other plan that I am aware of will permit of a prolonged exposure of the foreground and a short one of the sky, if objects, such as trees, church spires, *et id genus omne*, encroach upon it without showing a

mark, as if double printing had been attempted. The principle is precisely identical with that used for the double portraits. These, in fact, suggested the plan to me.

"In conclusion: If the view you intend to photograph looks surpassingly beautiful at first sight, do not rest satisfied until you have seen it under other atmospheric conditions. There may be other dispositions of the light and shade far superior to the first you saw, however charming it may have appeared. When it is done, never consider it so successful that you cannot surpass it, for in this case, although 'a contented mind is a continual feast,' according to the copy-books, it will induce that species of satisfaction most inimical to progress; for the very fact of feeling we cannot do better most certainly will prevent us trying to do better,—a most dangerous satisfaction, that will not long be retained without sooner or later leading to the discovery that we are considerably behind in a race in which we deemed ourselves victorious."

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### Erecting the Inverted Image in the Magic Lantern.

BY HENRY MORTON, PH.D.

A LENS, as every one knows, inverts the image which it makes of any object; hence, in the magic lantern, we place the picture upside down, and right for left, in order that its image on the screen may occupy a true position. This is the shortest road out of the difficulty, of course, where it can be followed; but there are many cases in which such a treatment of the subject is inadmissible. Thus, if we wish to exhibit to a large audience the manner in which tacks or iron filings are vivified by a magnet; how water assumes the spheroidal state on a heated surface; how the same fluid is caused to circulate by local changes of temperature, or is decomposed by a galvanic current, or any of the many similar experiments which may be conducted with striking effect in a lantern, we must resort to some means other than "inversion of the object," to secure an erect or right-side-up position of the image on the screen.

The desirability of some means for reach-

ing such a result is very manifest, and the most natural first thought is, to use a square prism, as described by Brewster in his Optics, page 270, where a drawing is given, curious at once for its theoretical accuracy and practical impossibility; an equilateral triangle being taken to represent a square prism, and the refracting action indicated as about eight or ten times as great as it could possibly be. Yet, viewed as a symbol or hieroglyph, this drawing, as will be shown presently, may be regarded as embodying actual results, which, if known to the author, were certainly not hinted at, and to the best of our belief, will find their first publication at this time.

A more accurate drawing of the same thing is to be found in Frick's Physical Technics (an admirable work, which should be in the hands of every experimenter and manufacturer of apparatus), p. 209.

With such authority, we should have proceeded to experiment, but for the information, from one who had given much attention to lantern manipulations, that the plan had been tried and abandoned by him, in consequence of the loss of light and reduction of field which it entailed. Professor R. E. Rogers, who had gone further than we, and had made some experiments, was, we believe, deterred from further attempts by the same cause.

A trial, however, was at last made which satisfied us that, under proper conditions, a good result might be realized with a square prism, placed in front of the objective of an ordinary lantern.

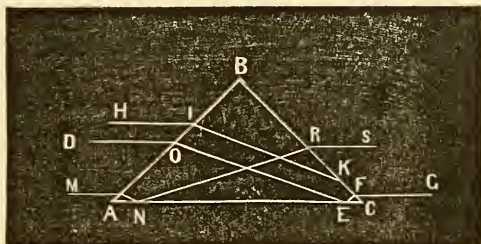
The accompanying cut, which is drawn with some attention to accuracy of direction and angle, will show, on inspection, how the upper and under rays, D and M, change places, and thus how the inversion is corrected. In using this prism, no inclination is given to the lantern. It remains directed to the screen, exactly as with the inverted image.

The loss of light experienced is not serious, so that we are able with an ordinary lantern, to cover a screen of twenty feet in

diameter with a brilliant circle of light; while the contraction of field, though notable, is not of any practical inconvenience.

The only drawback was the difficulty and

Fig. 1.

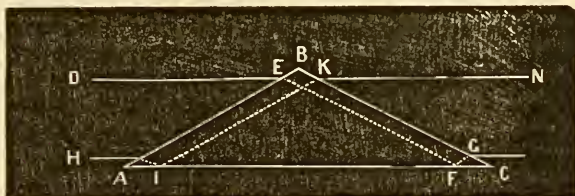


cost of obtaining prisms large enough, and this difficulty has been overcome by the ingenuity of Mr. Zentmayer, who has devised the excellent improvement we shall now proceed to describe.

Observing that with the square prism, only the lower portion is available, any ray above D, Fig. 1, such as H, for example, failing to strike the base and be reflected, but suffering reflection downwards at K, and so being lost, he proposed to make the prism of such a shape as is indicated in Fig. 2.

Here the angle B is calculated to equal the angle of refraction of a horizontal

Fig. 2.



ray, such as D at the surface A B, plus  $90^\circ$ . Under this condition, such a ray, after refraction, would be parallel to the further side, B C, and would therefore reach the base, A E, and be reflected from it, however near to the summit, B, it might strike.

The lower ray, H, would be in an equally favorable condition, as is clear from inspection of the figure. The angle, B, is  $125^\circ 30'$ , A and C, of course,  $27^\circ 15'$  each. It might be thought that the great obliquity of the surface, A B, would cause a serious loss of light by reflection, but this drawback does not appear in practice.

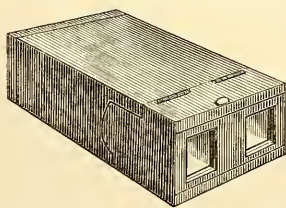


The economy in thickness of glass required to produce a prism of given effect is decidedly very great. In fact, the ordinary optical glass, which is easily procured, answers perfectly; while for the square prism of sufficient size, it would be necessary to order blocks especially from the foreign manufacturers.

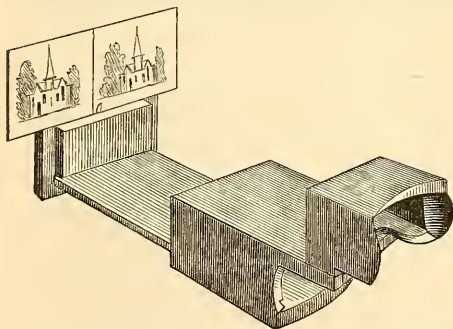
With regard to the curious *symbolism* of Brewster's drawing, we can now explain, that the rays, after refraction, were *represented* as proceeding in lines parallel with the faces of the prism, as in Fig. 2, though with a triangular, or even with a square prism, this was entirely impossible.

We do not wish to claim any originality in the use of a square prism, as above described, but only to call the attention of those interested, to the practicability and success of the arrangement. The form devised by Mr. Zentmayer is, however, we believe, entirely new and certainly most efficient, and he is entitled to all the credit of its invention.—*Fr. Inst. Jour.*

### Rawson's Stereopticon, or Stereoscope and Case Combined.

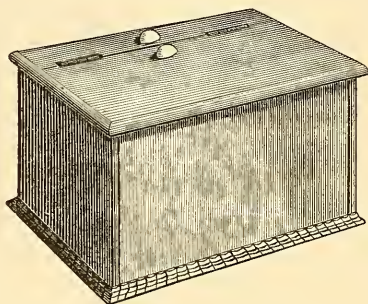


MR. D. W. S. RAWSON, Peru, Illinois, seems to be studying out things photo-

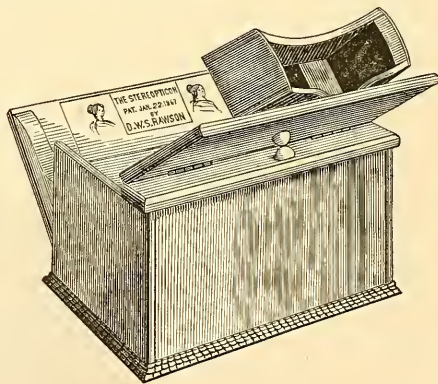


graphic that will not only benefit photographers, but the public at large. The cuts

herewith, represent his new "Stereopticon," an instrument for looking at stereographs and a case for their safe keeping, combined. It is well known that when used for a short time, the slides become



worn, the corners turned and ragged, and the picture soiled by handling. This instrument is not only intended to remove that trouble, but to supply a case for storing the slides when not in use.



The whole is a most ingenious contrivance, and is as excellent as it is ingenious. There are two sizes and styles. They are each represented by the drawings, one of each showing the instrument closed, and the other opened for use. It will be seen, that when closed the instruments make very handsome ornaments for the centre-table. The smaller one will hold about 25 slides, and the larger one, 50 or more.

To use the first one, pull out the slide and throw over the end piece, which holds the lenses, until it rests upon the body of the box. The pictures are placed in a lit-

the spring on the end-piece, and focussed by moving the slide in and out with the hand. When the picture is to be changed, remove it and place it in the box, and proceed with another. This will become a very popular instrument.

To use the larger one, place the box on the table, and turn back the cover to rest on the knobs thereon; swing the front forward about two inches, or so as to stand at right angles with the cover, and place one or two dozen views on the little rests and brackets; turn the box, which holds the lenses and works on a pivot, one-half around so as to face the views, and focus by moving the front back and forth. In changing the views, they are not lifted out with the fingers as in the other case, but with the fore finger they are tipped forward and fall into the bottom of the box, where they may be kept unsoiled. The optical arrangements having been greatly improved, it is claimed that persons who have heretofore been unable with other instruments to obtain the stereoscopic effect, will be delighted with their success with the stereopticon, and, moreover, that the illumination, either from a lamp or window, is much more easily and perfectly obtained than with any other instrument. We think it certainly accomplishes all that is claimed for it, and it is beautifully gotten up.

Being fully occupied in the manufacture of his Reflectors, Mr. Rawson will contract for the manufacture of these, or sell the patent, which was issued January 22d, 1867.

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## PHOTOGRAPHIC SUMMARY.

BY M. CAREY LEA.

GERMANY.

*Landscape Photography.*—At a meeting of the Photographic Society of Vienna, various points, in connection with this subject, were discussed, and the following opinions were expressed:

On the question as to whether green foliage was better rendered by enlarging small negatives, or taking larger ones directly, the opinion was favorable to the latter, although it was admitted that small negatives taken by rapid lenses, especially

portrait lenses, exhibited greater detail in foliage than others. In a word, that long exposures could not make up for a want of intensity in the camera-image.

As to the best collodion, Schrank was inclined to differ from the opinion expressed by Vogel, that bromide of silver, or rather a highly bromized collodion, was more sensitive to faint light. In his opinion, the office of bromide was to prevent solarization. In proof, he cited an experiment made by him, in which plain collodion was separated into two portions, one sensitized with iodide of cadmium and of ammonium, and the other with the corresponding bromides. Both were then exposed at a color-scale, consisting of ultramarine, Mitis green,\* cherry-red, lemon-yellow, orange, and sap-green.

With an exposure of ten seconds, the bromides gave scarcely a trace of the light yellow, whilst, with ten seconds, the iodides showed all the colors well graded off. But the ultramarine at once began to solarize, so that Schrank concludes that the generally received opinion, that the use of bromide is to check solarization, and permit exposure till the faint lights have impressed themselves, is correct.

Angerer remarked, that having tried the effect of gradually increased doses of bromide, he found that with each increase of bromide, the picture became intenser. But the quantity of bromide must not be carried beyond one-half the salting.

On the question of sunlight and dull light for landscapes, Schrank agreed with England, that sunlight was preferable; in fact, that no other width was allowable, except when portrait lenses were used for taking landscapes, and, at most, triplets. (This part of the question seems to have been insufficiently discussed.)

As to the best lens for views, Schrank preferred the two-inch diameter Voigtlander orthoscopic. Angerer quoted Naja, whose architectural views have great reputation, as preferring the old View lens to all others (for landscapes, it is to be supposed), and who has a set of different focal lengths, all screwing into the same mounting, so as to be able to use whatever focal length the

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\* Arsenite of copper.

immediate circumstances seem to call for.—*Photo. Correspondenz.*

*Retouching.*—Riewel remarks, that retouching has now become so general in Vienna, that there are but a few good galleries where the negatives are not most carefully worked over before use.

With all its advantages, this color-retouching has one objection—that if the negatives are brought suddenly from a cold room to a warmer one, they will sometimes become covered with a slight condensation of dew, which may soften the retouching color. If now the negative be printed, the paper is apt to adhere.

Riewel prefers the pencil retouching to all others, but states that it is by no means the easy matter that some journals have affirmed. Great care is required not to injure the film.

Lukhardt remarks, that color-retouching has the evil that the colors used change. Therefore recommends to flow the negative with a solution of India-rubber in benzine, then to retouch with aniline red, which he affirms enters into a combination with the India-rubber, and then finally to varnish, not before.—*Ibid.*

#### ENGLAND.

*Keeping Plates before Development.*—Mr. Valentine Blanchard has made what seems a valuable contribution to our manipulations, by remarking that plates can be kept very long between sensitizing and development, by using a collodion containing a full proportion of bromide, from 2 to  $2\frac{1}{2}$  grains to the ounce, and by keeping the plate the shortest possible time in the nitrate bath, abridging the time as much as possible by keeping the plate constantly in motion from the first, so as to get rid of the greasy lines as quickly as possible. As soon as this is effected, the plate is to be removed.

The explanation given is both ingenious and probable. It is well known that bromides in the collodion are converted into bromide of silver much more slowly than iodides. If then, the time in the bath is shortened as much as possible, continued only till the film takes the bath smoothly, there can be little doubt that unaltered bromide (say of cadmium and ammonium),

remains in the film. Now, whilst the plate awaits the nitrate solution, instead of concentrating by the evaporation, is losing silver to the bromide continually. And thus it is affirmed, the plate may be kept in good order for a time impossible in any other way. Mr Blanchard has developed a 10 × 12, after three hours.—*News.*

*Portraiture.*—It is affirmed that the secret of Adam Salomon's extraordinary success of portraiture (his portraits being admitted on all hands to have no equals at the Paris Exposition), lies in the long exposures which he gives. He uses a rather acid bath, sufficient to insure a perfectly clean picture, and then gives plenty of time.

His printing is alleged to be one source of his superiority. It is suggested that he uses his paper the moment it is ready, carefully avoids any exposure of it to light, and produces remarkable effects by exposing the print after it comes from the frame to light, for a short time; protecting the face and hands, thereby obtaining a remarkable purity of tone in the flesh.—*News.*

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### VOICES FROM THE CRAFT.

In preparing some paper for the "Magic Birth of Ferns,"\* I observed that the side of the paper which faced the light from the window, became rapidly discolored, passing from a bright yellow to a deep brown; in other words, the action of the light upon the bichromate of ammonia was very rapid and energetic. I am, at this moment, without proper source of information, and under the idea (perhaps an erroneous one) that the agent usually employed with gelatine by photographers, is the bichromate of *Potash*,

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\* A beautiful experiment described in late journals: Pass bibulous paper through a strong solution of bichromate of ammonia, and dry it. Cut it into pieces of about two inches square, and fold one of them in six or eight plaits or creases; stand it on end, and light the top by running a lighted match along it, taking care to not light it into a flame. From the line of light, as the paper slowly burns, the chromic ash exhibits the appearance of miniature fern leaves. Perform the experiment in a good light, and (for the sake of contrast of color), upon a white plate or saucer.



which is far less sensitive to light than the same salt of ammonia. It would probably be well worth while for those who are experimenting in the carbon process, phototyping, and kindred branches, to try the bichromate of ammonia instead of the bichromate of potash. C. G.

Bichromate of ammonia has been used repeatedly in the carbon process, but the potash is preferred. The first is too expensive.—ED.

#### EDITOR PHILADELPHIA PHOTOGRAPHER:

DEAR SIR: In an article published in the last number of the *Philadelphia Photographer*, entitled: "Photographic Varnishes," Mr. M. Carey Lea, in speaking of negative varnishes, says: "It does not seem that essential oils, so often recommended, can have any effect except that of giving out pleasant odors during varnishing; their volatility insures that they will quickly disappear."

How wrong Mr. Lea's conclusion is, will appear by my own experience, which I give as a warning, lest, coming from so high a source, many might be led to err.

About three years ago, I reasoned just as Mr. Lea has done, and thought, of what use can an essential oil be in a varnish, which scarcely leaves a mark on paper?

In consequence, I made a varnish of gums only, leaving the essential oil out. After the lapse of about four months, my attention was directed to the condition of the negatives which had been varnished with the varnish without the oil, when I found, to my sorrow, that the films had commenced to crack and to scale off, and, in two months more, all had become entirely useless by the films completely scaling off. This experience cost me about 3000 negatives. The opinions of the qualities of varnishes vary very materially with different persons; what is good for one is bad for another. So will a practical photographer hold an opinion of a varnish entirely different from an amateur, or, a photographer who admires dense negatives, will judge differently from one who prefers soft pictures. The great objection to purely alcoholic varnishes, is the application of heat necessary to make them to dry smoothly; if there is too much it runs off in streaks, and requires re-varnish-

ing; if there is too little applied, it dries dull and in lines, even the change of position of the plate when drying producing marks. Then there is the risk of the cracking of the negative by overheating (and what photographer has not had sad experience in this line?) to say nothing of loss of time and expense for alcohol and lamp.

I for one, would at any time prefer a varnish that will dry quickly and hard on a perfectly dry plate, without heat, or in damp weather with the application of a little warmth, even if the density of the negative is somewhat reduced. At all events, nowadays it is easy enough to obtain negatives that will answer any purpose.

I have tried the formula recommended by Mr. Lea, but am sorry to say that I did not succeed with it. When, after filtering through filtering-paper, I coated a warm glass-plate, the varnish would draw together as if there were something in it that did not belong there, and, after it had stood twenty-four hours, it had become turbid by particles of precipitated white lac. After filtering again, it would dry smooth, but, being too thin, more sandarac had to be added to give it more body. I do not think there were more than two drachms of the white lac left in the varnish; the rest had been filtered out by the second filtration. The negative was not reduced in strength.

Respectfully yours,

F. A. WENDEROTH.

#### GERMAN CORRESPONDENCE.

My last letter contained a summary of the American photographic display in the Exposition; I also mentioned an interesting novelty, namely: Grüne's process of gilding or silvering glass and porcelain by means of photography; a process of which Liebig states as being, in an industrial point of view, the most important thing displayed in the photographic department of the Exposition.

Permit me now to continue my report of interesting objects, and to point out to the visitor what really is worth looking for in the Exposition. To do this, it will be necessary for me to carry the mind of the reader over land and sea, and then I will continue

with Germany. The first striking object is the monster objective of Busch, of Rathenow. When an optician undertakes the construction of an extraordinarily large instrument, the aim is to furnish the proof that his establishment is able to solve the most difficult problems. In this respect, the lens is a match for the large cast-steel gun of Krupp, in Essen. This *photographic* gun has a lens whose diameter is 10 inches; the length of focus from the back lens is 33.75 inches; it weighs 150 pounds, and stands 30 inches high. The portrait which Mr. Sack "shot" with it, shows a sitting figure, sharp in all parts, of 21 inches in height. The height of the whole picture is 30 inches.

The above figures prove the excellence of the instrument, for an objective which can produce a picture twice the size of the diameter of the lens, must be a good one.

While speaking of Mr. Busch, who is so favorably known as an optician, I must not neglect mentioning that his pantascopic lens received the prize for wide-angled lenses. The field of vision proved to be larger than in any other lens. I regret very much that your new Zentmayer lens was not exhibited; the sample pictures made by it, which have come under my observation, are remarkable.

Next, in the order of gigantic photographic productions, we have Schauer's large picture in the *Vue de Belgique*. This is a reproduction of an oil painting representing Frederick the Great at the "round table," at Sans Souci. The picture is 41 inches high, by 34 inches wide; is taken in nine parts, and pasted so artistically together that it is difficult to say where the sheets are matched; it is astonishing how even and uniform the tone of the whole picture is, and, it is certainly a remarkable photographic production.

Durette, in Amiens, has furnished something similar, in a large picture of the Cathedral of Amiens; this picture is also pasted together, and consists of nine pieces, but its tone is gray, cold, and not at all equal to Schauer's, although the pasting is done very well. The same artist exhibits the magnified image of a flea to which he has added, by means of pasting, a new proboscis, new legs, ribs, &c. This animal has

been in different exhibitions, and seems destined, like the Wandering Jew, to travel all over the world.

Various other enlargements are met with, in all parts of the photographic departments, though the least in the North German. I think this shows the good taste of our countrymen. An *enlèvement*, no matter how well executed, never makes the impression of a direct picture; the only purpose to which enlargements really seem to be adapted, is to serve as foundations for the works of the painter.

Of far more interest, although almost neglected by the general public, are a number of small relief prints, by Woodbury, which are hung on a pillar in the English department; a few of these prints are displayed, also, in the French department, by Bingham; the latter has bought the patent for France, and Mr. Woodbury is at present in Mr. Bingham's atelier, engaged with the execution of his process. I had the pleasure of seeing him practically at work, and shall endeavor to give you a short sketch of the process. He showed me quite a number of splendid gelatine reliefs, which he had made by exposing a layer of chromate of gelatine, and afterwards washing the unaffected gelatine out. As a basis for the gelatine, he used mica in the beginning; now he uses collodion. On this, the sensitive solution is spread, and, after drying, exposed from the back under a negative. The washed and dried relief possesses an extraordinary hardness, and is easily pressed in lead. Mr. Woodbury placed the relief with a lead plate into a hydraulic press, and made, before my eyes, several splendid copies of the same plate; these form the matrices for the production of his pictures. He placed the plate, the relief side up, into a simple frame, poured a little heated and blackened gelatine on this, placed a piece of paper on it, and, by means of a cover, pressed the whole together; after a few minutes, the gelatine hardened, and the print was removed.

Just as easy, and perhaps a little simpler, was the printing on wood or glass. The piece of wood or plate of glass was simply pressed with the finger to the prepared surface. The resulting pictures were splendid, as regards fineness and half tones, and looked exactly

like photographs. Woodbury, so far, has only made small plates. For larger ones, the process appears to offer difficulties yet, still, it is of great importance, particularly where a thousand or more impressions are required from the same plate; for instance, for visiting cards and cabinet portraits, which, at present, form articles of trade. Woodbury, himself, is constantly engaged in the perfection of his process. A drawback lies in the gelatine ink; the pigment easily becomes grainy, and then the picture has a mealy appearance. He goes soon to Austria, in order to introduce his process there. Disderi bought the patent-right for England.

Of at least as much importance as Woodbury's works, are the carbon prints of Swan. Woodbury makes only small plates, and his process is only of advantage when it becomes necessary to make several hundred prints. Where large pictures and a limited number only are wanted, one cannot find a better process than the carbon process of Swan.

At the London Exhibition the carbon prints were considered a curiosity. Nobody would admit that this process ever could take the place of silver printing, and, in fact, those pictures were not very brilliant, and the process was so complicated and difficult, that few had the courage to make an attempt at it.

In the Paris Exhibition a number of the most splendid carbon prints are exhibited; portraits, landscapes, and reproductions, and in such large quantities that every one sees that these prints can be produced on a large scale. While in 1862 the exhibitors of carbon prints were experimenters, we now have practical photographers at it. In the English Department there are two, Nelson Cherrill and Swan himself. The latter has some splendid portraits from negatives by Blanchard, as well as some elegant landscapes from negatives by Bedford, but more important than even Swan's, are those by Braun, of Dornach, in the French Department. Braun is one of the first photographers of the continent; his fine stereos, of nearly all the cities and countries of Europe, have a world-wide reputation, but his large Swiss views, and particularly his pan-

toscopic views, are unequalled. The pantoscopic apparatus has only come into practical use through Braun. Sparing no pains or expense, dreading no danger, he has climbed the highest summits of the Alps, encamped on the Glaciers, and thawing the frozen nitrate bath by an alcohol lamp, has obtained negatives that would put to shame the productions of many a photographer who works with ease and comfort in his atelier.

When such a photographer introduces the carbon process, it should be taken as a hint by others, not to neglect to take advantage of the improvements in the printing department of photography. Braun exhibits some splendid specimens. As a masterpiece I must mention a picture 30 inches in height, representing a dead deer, with gun, powder-flask and pouch, a splendid piece, remarkable as a direct picture of half life size, and of a fineness and brilliancy in tone that few silver prints can compare with. But Braun is a man of original ideas; not satisfied with following in every one's footsteps, he strikes out in new directions, and has applied the carbon process where ordinary photography would not do at all.

In our museums and art galleries there are, besides oil paintings, innumerable collections of drawings by the old masters, as Raphael, Michael Angelo, &c. Most of these are sketches of larger pictures, and I venture to say that these sketches are more interesting than the paintings themselves, as they give us an insight in the creation, in the origin of a work of art; in this way they become important for the art student.

So far these treasures have lain buried in maps, and have been accessible only to a few. Now and then the attempt has been made to reproduce them by means of photography, but how can the monotonous silver print reproduce drawings that are executed in brown, red, gray, blue, or yellow color.

Now, Braun in Dornach conceived the happy idea to use for the reproduction of these drawings, the carbon process, which admits of the admixture of any pigment to the chromate of gelatine. I saw a carbon print copy of a lead-pencil drawing which looked so exactly like a lead-pencil drawing



that it took considerable time to convince me that it actually was done by the carbon process.

Up to the present time Braun has reproduced about 500 drawings from the gallery of the Louvre, and in this manner he has made the buried art treasures accessible to everybody; he will continue his labor and reproduce the drawings of the Vienna and Florence museums. The small space at the Exposition does not give an adequate impression of the extensive activity of Braun, but a visit to his establishment in Dornach, where I spent a whole day very pleasantly, reveals the magnitude of his operations.

You mentioned not long ago in one of your letters, the fine carbon prints of Rowell, in Boston; since then I have seen a splendid cabinet portrait made after his process, and I see from the description of it in your Journal, that it is the same as Swan's, and consequently a description of Swan's process is useless. At a future day I shall give you a description of Braun's establishment.

As in all probability we will soon witness a revolution in the printing operation, many will ask what is the expense of the new process; Braun states it at  $\frac{1}{2}$  of the silver print; this is some progress. The reason why the difference is not larger is simply that three times as much paper is used in the carbon process as in the silver process; with the latter, the picture remains on the silvered paper, while in the carbon process the picture, after exposing, is transferred from the gelatine paper to the caoutchouc paper, and from this again to a gelatine paper, the two first papers being useless and thrown away. This is the only objection that can be made to the carbon process, otherwise it is just as easy, simple and elegant as the old method, besides it has the great advantage of permanence, greater uniformity of tone, the choice of coloring material, not to speak of the freedom from those confounded accidents, which drive a printer on albumen paper to desperation.

Yours, very truly,

DR. H. VOGEL.

BERLIN, May 28, 1867.

## NEW YORK CORRESPONDENCE.

THE Photographic Section of the American Institute met on the 9th of June, Mr. Ruth-erford, President, in the chair.

A few very appropriate remarks were made by Professor Tillman, as to the status of the "Section" as compared with that of the old society, now gone; he hoped, indeed he did not doubt, but that the change was better for the members, and also better for the art, by having a far greater field of usefulness, and, under the Institute, ample means to practically extend its operations.

Mr. D. C. Chapman read a paper on a dry process without a bath, which can be described, shortly, as follows:

Dissolve in—

Ether, . . . .	1 ounce.
Alcohol, . . . .	1 drachm,
Cotton, . . . .	12 grains.
Bromide of Cadmium, . . . .	24 "

In another bottle, dissolve in—

Alcohol, . . . .	7 drachms,
Nitrate of Silver, . . . .	24 grains.

Add of this last, to the first, about 1 drachm at a time, and shake until well mixed, and so on until all is added. Filter and use within a few hours.

Edge the plates to be coated, with a 2-grain solution of rubber in benzole. Wash them well, as soon as dry, in water; after which, when drained, flow with a 10-grain solution of tannin; when dry, they are fit for use, and possess excellent keeping properties.

To develop, wet well with water, and flow over sufficiently of the following solution:

Water, . . . .	1 ounce.
Carbonate of Ammonia, . . . .	24 grains

After this has well saturated the plate, return to some convenient vessel, and add a few drops of a 5-grain pyrogallie acid solution in water. A few applications of this, with probably a few more drops of the pyrogallie, will suffice to finish the picture. Should it not yield a sufficient intensity, wash well, and continue by using the acid pyro solution as for tannin plates. If fogging should appear, wash off and flow over a ten-grain solution of bromide of potassium

in water; this will check and cure such trouble.

He stated that the exposure did not exceed double that given to the "wet."

Mr. Hull called attention to the—

*Acetate of Morphia Dry Process,*

as described to him by Mr. Martin, of Albany.

For preparing the plates, follow exactly the same directions as given in your Journal for the tannin process, only substituting a one-grain solution of the morphia in water for the tannin solution, which flow over the plate, instead of using in a bath. Develop as follows: In a tray or dish, put enough of either Professor Towler's or H. T. Anthony's gelatine and iron developer, to cover the plate; while the plate is in this, pour some of the same developer in a glass, and add of silver solution from the nitrate bath, a few drops; remove the plate from the dish, and flow this last solution over it; the picture comes up as quickly as in the wet process; and, Mr. Martin says, is in every way most capital, most certain, and most easy to work. Mr. Holmes said that it was, by all odds, the best dry process that he knew of, and required but a third more time than the "wet."

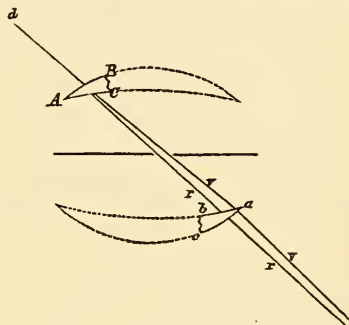
If all this proves so in other hands, then adieu, tannin, and all the other dry-plate formulæ.

Mr. Rutherford made the following remarks on achromatic objectives composed of crown-glass alone:

"On page 197 of the *Philadelphia Photographer*, No. 42, an article is quoted from the *British Journal of Photography*, in which it is repeatedly stated in the most positive manner, that it is impossible that an objective composed of two crown-lenses can be achromatized. This statement is entirely erroneous in theory, and ignores a well-known principle of optics employed for more than a century in the construction of the Huygenian eye-piece.

"A glance at the above diagram will show how such an objective may be achromatic. *A, B, C*, and *a, b, c*, are portions of two crown-lenses, and, for our purpose, may be treated as prisms. The ray of white light *d* falls upon the prism *A, B, C*, and suffers dispersion, *v* being the violet and *r* the red ray; after traversing the central opening in the diaphragm, *v* and *r* fall upon the prism *a,*

*b, c*, which has its refracting angle  $\alpha$ , in a sense, opposite to that of *A*, and consequently tends to disperse the light in an opposite direction, that is, to correct the dispersion of the first prism. The amount of this correction may be controlled



in three ways: 1st. By the distance between the prisms, since it is obvious that if the prisms were equal in angle and dispersive power, and were in contact, the ray *d* would emerge from the combination with no more effect than would be produced by a plate of glass with parallel sides. 2d. By a change in the refracting angle, as in the case of the Huygenian eye-piece, where the foci of the lenses are as three to one. 3d. The angles remaining the same in two prisms, by a proper adjustment of the angles at which the light traverses them. It is not difficult, by this mode of adjustment, to achromatize a glass prism of  $60^\circ$  angle, by the proper use of another of the same material having only an angle of  $40^\circ$ .

"Practically, these considerations are of small importance, since all view lenses are used with stops so small, that objects in the foreground and in the distance, are alike figured with sufficient sharpness, and it can be easily shown that the indistinctness caused by the great difference in the distance of the objects taken, is much more formidable than that due to a want of achromatism, even with a single lens.

"The writer in the *British Journal*, in stating the proportion, one to three, of chromatic aberration to focal distance, omits the very important term of the aperture of the lens. The chromatic aberration is inversely as the focal distance, but increases as the square of the aperture, so that no such general statement, as he makes, can be true. It will be readily seen, that the application of this factor of aperture to our view lenses, will reduce the chromatic aberration to a trifling quantity, even if uncorrected."

The following paper was read by Mr. Rutherford in answer to Mr. Tilghman's

proposition to the Philadelphia Photographic Society :

“On page 190, of No. 42 of the *Philadelphia Photographer*, I find the following: ‘Mr. Tilghman suggested, as an interesting subject for discussion by the Society, the claim made by Mr. Rutherford, that, by correcting a lens so as to unite the actinic portions of the spectrum without regard to the visual rays, impressions may be taken in one-tenth the time necessary with lenses corrected in the usual manner. No greater advance could be made in photography than in obtaining lenses for terrestrial views, that would work as quickly as Mr. Rutherford’s 11½ inch refractor.’

‘I am not aware that I have ever made a claim which can be interpreted as promising the results for terrestrial views, mentioned as so desirable by Mr. Tilghman.

‘In an article on astronomical photography, published on page 304 of volume 39 of the *American Journal of Science*, May, 1865, while comparing the operation of the telescopic objectives of equal aperture, the one on ordinary achromatic, and the other connected solely for the actinic rays, it is stated, page 308, ‘An exposure of one second gives a strong impression of Castor, and the smaller star is quite visible with half a second. With the achromatic objective, it was necessary to expose Castor ten seconds to obtain a satisfactory result.’ In this statement, two things must be observed: 1st. The objectives compared are telescopic objectives, and not those constructed for the camera, in which last a partial correction of the actinic rays is accomplished, at least, so far as to bring the best visual and the best photographic foci attainable by such a construction upon one plane; and 2d. The object is a star taken upon a black field, and herein is to be found the principal reason for the great difference observed between the performance of the ordinary achromatic and that of the photographic glass; the size of the star-image is so minute, that all rays not brought to a good focus, are lost upon the black ground, and do not aid the picture, while, in the case of an object of larger dimensions, such as the moon or Jupiter, the failing rays, proper to one point, are, in a measure, supplied by those which belong truly to some adjacent feature, and the result is a failure of distinctness rather than a want of light. On page 305, of the article above referred to, I have, in this manner, explained why it was, that with the old achromatic a picture of Jupiter could be taken in five seconds, while no exposure was sufficient to obtain an impression of the satellites,

and yet the latter are more intensely illuminated than the planet, and can be seen at times as bright spots projected on the disk of the primary.’

Dr. Vanderweyde exhibited some most charming photographs of large size, made with a meniscus lens, 14 in. focus, and  $\frac{3}{8}$  in. aperture. Their peculiar beauty consisted in most perfect illumination, especially in the shadows. Some of the members claimed, for such lenses, this as a great advantage over the modern style of landscape instruments, and asserted that the “Globe,” and all of that class, gave too hard a negative; a picture too marked in its extremes, with vigorous high lights, and shadows without any detail whatever.

Mr. O. G. Mason exhibited a negative made by him at 11½ P. M., on May 11th, of a flash of lightning; it was sharp, having fair intensity, and was certainly a success.

Prof. O. N. Rood examined it and described its peculiar characteristic. One of the ends of the discharge was rounded, the other pointed, and were of different intensity. The electric flash could be distinctly seen. This was made upon a tannin plate.

Mr. H. J. Newton read a paper upon the discoloration of albumen paper; he said that it could be overcome by the use of his weak silver solution, and advised its use, during the warm weather, as a certain remedy for this most common and expensive trouble.

Full details of his process will be found in the February number of this journal.

The Society was made happy by the receipt of two dozen of as fine stereo views, as could well be made, of the far-famed Green Mountain scenery of Vermont.

They are the production of Mr. A. F. Stiles, of Burlington, Vermont.

It was decided that when the Society adjourned, that it should be until the second Monday of September. By this wise course, your readers may be saved this monthly infliction of C. W. H.’s for that length of time.

PROF. S. D. TILLMAN directed attention to late important investigations made by M. Carey Lea, of Philadelphia, on the nature of the latent image. The speaker concurred entirely with the deductions made by that gentleman, in relation



to the chemical power acquired, by certain bodies, subjected to the action of light. These investigations harmonize with the views set forth by the speaker several years since, which, however did not touch all the points elucidated by Mr. Lea. In the *American Journal of Photography*, of August 15, 1859, will be found an article written by the speaker entitled "Photo-phosphorescence," in which he gave the results of recent investigations by Becquerel, and after alluding to phosphori, which were excited by electricity, friction, and heat, he proposed to distinguish the results of the action of light upon phosphori as photo-phosphorescence. In offering an explanation of this phenomenon, in accordance with the undulatory theory of light, he asserted that "one must regard these luminous appearances as secondary or inductive, and resulting from the vibratory motions of the atoms composing the phosphori, communicated to them by the original rays. Do not elastic fluids always thus act? The pulsation of air producing sound, will cause a sympathetic vibration of certain strings and reeds; these will continue to vibrate after the original sound has ceased." The phosphori hold the same relation to the primary ether-waves that the strings or reeds have to the primary air-waves. The secondary propagation of light and sound correspond.

In a paper read by him before this society, November 11, 1861, and published December, 1861, in that Journal, on the cause of actinism, in which he endeavored to show that heat, color, and actinism were produced by undulations of different lengths of the same attenuated medium—actinism being the result of short waves, heat of long waves, and color of harmonic relations, that is, the ratio of vibrations of the waves forming the middle or luminous octave, and the intensity of the effect in either case depends on the amplitude of the wave—the ground taken was, that the undulations of ether of least length, in other words, the shortest ether-wave, affects the normal condition of a single molecule of ponderable matter, by changing the relative position, motion, and polarity. He at that time supposed this effect must be prolonged in compounds, sensitive to the chemical rays of light, producing after-action similar to that when phosphori have been exposed to the luminous rays, but the former being invisible, no proof of such action could then be adduced.

It has been reserved for M. Carey Lea to demonstrate, that a body sensitized by actinic rays has the power of retaining its new characteristics after an exciting cause has been withdrawn. He

has very properly designated this phenomenon *actinescence*.

He explains the manner in which the actinism takes place with iodide of silver. This compound undergoes no decomposition by light, when thoroughly isolated from all substances, organic and inorganic, which are capable of aiding in effecting reduction. But if exposed to light it continues for a certain time thereafter to retain the vibrations it received; and just for so long as these vibrations continue, will it be instantly decomposed if brought into contact with any substance, which would have caused its decomposition, had the two been subjected to the action of light together.

Iodide of silver if exposed to light in the presence of pyrogallie acid and nitrate of silver is reduced. If the iodide be exposed separately, it is thrown into a state precisely similar to that of a phosphorescent body, except that it continues to vibrate in unison with the actinic instead of the illuminating rays; and so long as this condition remains, if it be brought into contact with the above-mentioned substances, the effect is the same as if they had been exposed together to ordinary light.

The President thought the theory of Mr. Lea was very ingenious, but it did not appear to him to account for the fact that these latent images retain their power of producing chemical changes for a very long time.

Mr. Hull remarked that a series of experiments was made with tannin plates at Philadelphia, some time since, and it was proved that the longer they were kept, the less was their power for development, and at the end of six months it was not perceptible, but on being re-exposed the power of the plate was restored.

Long as this letter is, a very large share of valuable matter has been forced out; indeed, the new life, given by the most wise change of uniting with and becoming part and parcel of a strong and wealthy Institute, was seen by all present at the meeting, and promises a most useful and valuable future to our old Society, under its new name.

C. W. H.

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### PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting of the Society was held on Wednesday evening, June 5th, 1867.

The chair was occupied by the Vice-President, Mr. Tilghman.

The reading of the minutes of the last meeting was dispensed with.

The resignation of Professor John F. Frazer was received, and on motion, accepted.

Mr. F. A. Wenderoth read a paper entitled "*Carbon Printing versus Silver Printing*," in which he gave his preference to the latter.

Mr. Wenderoth's paper was accompanied by many beautiful prints in carbon made upon his own tissue, and in silver. The former, especially, excited the admiration of the members, many of them declaring that the carbon prints exhibited details in the half tones, and intensity in the high lights, which could not be equalled in silver printing.

Mr. Wilson replied to Mr. Wenderoth's objections to carbon printing, and stated that he thought many of the difficulties he had encountered with the carbon process were owing to the novelty of the operation.

Mr. Rowell did not consider it *necessary* to leave the prints in changing water all night, but stated only that they could be so treated if it was found more convenient. Washing under the tap for a few moments was really all that was required.

He had seen carbon prints made in less than nine hours by Mr. Rowell, beginning with the sensitized sheet, repeatedly, and it ought to take no one longer, if worked systematically.

As to the price, although he thought Mr. Wenderoth was greatly in error in figuring the cost of carbon prints, even if he were right, that very fact was a recommendation in favor of carbon printing, for we were all working against *cheap photography*, and we do not want cheapness particularly.

As to coloring them, we all know how infinitely superior a perfect silver print is to any colored picture, therefore, the fact that carbon prints cannot be colored, is not a cause for universal objection, but again a recommendation.

Mr. Wenderoth certainly never produced silver prints more exquisite than the carbon prints he had made and exhibited this evening.

Mr. Wilson also exhibited some carbon prints made by himself, on Mr. Rowell's

tissue, and a number made by Mr. Rowell. They were much admired by the members.

On motion, Mr. Wenderoth's paper was accepted, and the thanks of the Society tendered him for the same. It was ordered that it be entered upon the minutes.

Mr. Borda exhibited a Zentmayer lens with an equivalent focus of  $2\frac{2}{10}$ th inches. It was mounted in a camera, focussed optically by Mr. Zentmayer, and then the box firmly screwed, so that the distance between the lens and the plate-holder could be neither increased nor diminished.

The lens was provided with two extra diaphragms forming the following series,  $\frac{1}{20}$ th,  $\frac{1}{30}$ th,  $\frac{1}{40}$ th,  $\frac{1}{50}$ th,  $\frac{1}{60}$ th of the equivalent focus. The diameter of the last was 0.0366 in. Negatives taken with all of them were sharp, the circle of definition increasing, of course, as the diameter of diaphragm decreased. The exposures varied from 10 to 50 seconds for fully exposed pictures.

Mr. Borda concluded by saying that, having obtained such results with a permanent focus and with such a variety of diaphragms, he thought nothing could better refute the assertions made in the English journals, and merely based on theory, that the Zentmayer lens must have a chemical focus differing from the visual one, and that the focus must vary with the diameter of diaphragm.

Negatives made with the instrument so adjusted were shown to the Society, and were remarkable for their sharpness and definition. They were intended for making enlarged prints. Several positives from the above, magnified three diameters in an ordinary camera, were exhibited to the Society, and elicited much admiration.

Messrs. Draper & Husted presented a photo copy of an engraving of the fresco painting of the group of artists, sculptors, and architects in L'Hemicycle du Palais des Beaux Arts. It was made with the Zentmayer lens, printed in sections, and about 8 × 40 in. long.

Mr. Wenderoth read the following paper descriptive of a new lens invented by Mr. H. Roettger:

"This tube is the result of a discovery in adjusting the curves of a triple hemispheric lens, so that its corrections are balanced

when another similar lens of any focus is combined with it, giving an image under an angle of about 80 to 85 degrees, with perfect definition to the margin, when a stop of about  $\frac{1}{25}$ th to  $\frac{1}{33}$ d of its combined focus is employed, and giving straight lines up to the edge.

"This lens may be employed singly to good advantage, as it gives a clear and true perspective.

"Focus of combination,  $9\frac{1}{4}$  inches; back lens alone, focal length, 14 inches; stop,  $\frac{3}{8}$ th inch; circle of illumination, 19 inches. Price, \$50."

On motion, a committee was appointed to examine and report upon the merits of Mr. Roettger's new lens.

The chair appointed Messrs. Browne, Fenimore, Sergeant, and Wallace.

On motion of Mr. Fassitt, it was resolved that when the meeting adjourn, it do so till the first Wednesday of October.

The rough minutes were read and approved, and the meeting was adjourned.

ALEX. WILCOCKS,

Secretary (pro tempore).

## OUR PICTURE.

OUR readers will probably be a little disappointed at not receiving the promised cabinet specimen by Mr. Notman, this month, but owing to an unfortunate accident, a part of our edition was spoiled just as we were about to send them to the binder's, and we could not reprint them in time.

We hope you will bear with us, as we are not accustomed to appearing before you with an apology, and cheerfully accept the beautiful *architectural* specimen, which we present as a substitute,—the United States Capitol buildings. The negatives were made very kindly and specially for us, by Mr. William Bell, photographer at the Army Medical Museum, and are themselves a curiosity, being made on plate-glass,  $\frac{1}{4}$  inch thick. The Globe lens was used for the occasion. We believe the picture will be a useful study and acceptable to all. What follows, from the pen of Mr. Bell, accompanied the negatives, and will be found of interest.

"On the 12th of September, 1866, Mr. L.

E. Walker, photographer Treasury Department, being engaged taking large negatives of the Capitol, by his kindness enabled me to make use of his materials and conveniences, and also gave me his valuable aid.

"The negatives were taken with a six-inch Globe; exposure forty-five seconds; time of day, between ten and half past eleven o'clock; a cloudless sky; light, regular; same exposure given to each negative.

"The following formulæ were used:

### NITRATE BATH (WALKER'S).

Nitrate of Silver, . . .	45 grains.
Water (Potomac), . . .	1 ounce.

Made acid with glacial acetic acid.

### COLLODION (BELL'S).

#### No. 1.

Ether, . . . .	4 ounces.
Alcohol, . . . .	4 "
Cotton (140°), . . .	64 grains.
Iodide of Ammonium, .	40 "
Bromide of Potassium, .	16 "

#### No. 2.

Ether, . . . .	4 ounces.
Alcohol, . . . .	4 "
Cotton (175°), . . .	80 grains.
Iodide of Sodium, . .	48 "
Bromide of Cadmium, .	20 "

Allowed to settle, and the clear portions of each decanted and mixed in equal parts for use. The cotton for the above was made by Mr. Walker's formula, which is as follows:

Nitrous Acid: . . . .	10 ounces.
Sulphuric Acid (Commercial),	10 "
Cotton (Purified), . . .	1 "
Immersion (time of), . .	10 minutes.

"The sulphuric acid heated to 150 degrees, the nitrous acid then added, the temperature rose to 190 degrees. Allowed to cool to 170 degrees, and the one ounce of cotton, in fine flakes, was then immersed. After the expiration of ten minutes, taken out and washed in running water twenty-four hours. The same mode was used for the 140 degrees' temperature cotton, with the deviation of only heating the sulphuric acid to 100 degrees, adding nitrous acid, allowing to cool to 140 degrees, letting the cotton remain immersed fifteen minutes.



"The following developer was used:

Iron (Protosulphate), . . .	1 ounce.
Water, . . . . .	10 "
Acid (Acetic), . . . . .	2½ "

No redevelopment. Fixed in hyposulphite of soda.

"The glasses used were coated with the following:

Camphor, . . . . .	20 grains.
Albumen, . . . . .	6 ounces.
Water, . . . . .	3 "
Glycerine (Price's Fluid), . . .	1 drachm.
Chloride of Gold Solution (four grains to one ounce of water),	20 drops.

Beat to a stiff froth.

"The value of the addition of chloride of gold to the albumen, will be most observable in films that are porous in their nature, and those that will allow the iron developer to penetrate to the albumen coating. When so, it will be necessary to reduce the strength of the iron developer one-third, or the resulting negative will be too strong for fine work. It has not yet been tried for dry plates, but I think it will prove to be an advantage to them. The glasses were *not* coated with the albumen while wet, *but while dry*; being careful to avoid bubbles, as they will produce very disagreeable results. No artificial heat used in drying them.

"An under strata of gold and albumen will be found of great use in redeveloping with pyro, its effect being very apparent."

## Salad for the Photographer.

CYANIDE.—A correspondent of the *News* has found the following plan efficacious for removing stains from the hands, and thus does away with the use of cyanide.

"I clean my hands by painting all silver stains with a watery solution of sublimed iodine with iodide of potassium; one drachm of the former to two of the latter in six ounces of water. After a short exposure to light I rub in a saturated solution of hyposulphite, with a piece of sponge or cotton tied to a stick, and afterwards well wash with soap. The cleansing is as perfect as with cyanide, though possibly not quite so rapid."

WHEN you pour solutions from a bottle or other vessel, if you would prevent the drops from running down the sides, grease the edge or lips of the bottle, and it will cut the drops off like a knife. The application of a piece of soap will answer as well.

It is to be presumed, the operator keeps a stock of cleaned plates on hand, yet, as we are liable to be caught unprepared sometimes, I would say that a mixture of strong ammonia and alcohol, equal parts, rubbed in with a pledget of paper, will speedily remove the varnished film from an old negative. The ammonia, by its peculiar action

upon the silver image, will put the glass surface in the best possible condition for a new one. H.

FOR CLEANING GLASS PLATES.—Dissolve one pound of borax in a pint of water, using moderate heat. Immerse the negatives, taking a little care that the surfaces do not cover one another, and prevent the liquid from acting. As soon as the film is loose enough wash it off, immerse the plates in acidulated water, and wash again. If the borax bath is heated to near the boiling-point, most films will be ready to come off in a quarter of an hour; negatives strengthened with bichloride of mercury are, however, a little more obstinate. The bath may be replenished with water, and used over and over again. I find this plan more expeditious and thorough, than any other that I have tried.—WM. DELIUS, Waterbury, Conn.

A COMMON tin or glass pepper-box is useful to keep rottenstone in. By its use any quantity may be applied as desired. Or, tie a piece of fine wire-cloth over the mouth of your bottle.

WHEN you make a bad picture of your subject, always tell him he "moved." This rule is becoming general.

## Editor's Table.

ANNOUNCEMENT.—We have several important things in store for our next issue: a plan for securing diffusion of focus without a special lens, or changing the lens; a new process for photographing on wood; a new photo-lithographic process; a process for securing stronger negatives, &c., and several other novelties, which are crowded out this month. We have a treat for you.

MR. OSBORNE'S photo-lithograph, promised in this issue, is in our hands, and all ready, but we have to delay its appearance until our next, on account of the pressure upon our columns. We give you thirty-six pages of matter instead of thirty-two this month, same as we did last, and fear to run over our authorized weight, lest the *Photographer* cost you extra postage. Look for the photo-lithograph next month, and an unusually valuable number besides; we have 16 pages in type laid over.

MR. GAGE'S DISCOVERY.—As promised in our last we hoped to have received Mr. Gage's specifications in time to publish in this issue, but have not yet done so. However, as we heard them read before he applied for his patent, and, as a patent has been granted him both here and in England, we will briefly describe his method now, and have more to say hereafter. He calls it "partial development by light in the camera," by which he submits the sensitized plate to a certain amount of diffused light while in the camera, claiming thus to illuminate the shadows and harmonize the lights and shades of the photographic impression. He proceeds as follows: having exposed the plate, the lens is turned towards any dark surface for a short time, so that the plate is subjected to the weak radiations reflected from the dark dead surface. Mr. Gage accomplishes this by using a screen about eighteen inches square, covered with black cloth or velvet, and provided with a handle. This he keeps in motion before the lens for a longer or shorter time, and this is his plan. We shall describe it more minutely in our next, but would add here that we have received a number of prints from negatives thus "illuminated," from Mr. Gage, and, while they possess great vigor, there is an entire absence of hardness and strong contrast of light and shade. More anon.

STILL ANOTHER INVENTION.—Mr. Carl Meinurth, Newburyport, Massachusetts, sends us some prints which he calls "Mezzotintos," made by a process recently patented by him. His object is to secure the effect of *diffusion of focus* without either moving the lens according to Claudet, or going to the expense of buying a new Dallmeyer lens. He accomplishes his ends, we believe, by scattering pulverized mica over the negative while printing. The effect is very soft and peculiar, and the pictures resemble fine mezzotint engravings, being finer and softer even. At the same time, there is no loss of detail. If Messrs. Meinurth and Gage would join hands, we think some lovely results could be produced. We hope to give Mr. Meinurth's method in full in our next.

### EDITOR OF PHILADELPHIA PHOTOGRAPHER:

We feel called upon, by Dr. Vogel's letter of 22d February, which appeared in your Number 40, to state that he has not given due credit for the progress made in taking perfect negatives. Dr. Vogel infers, by the tenor of his strictures, that it makes little difference how a negative is taken, the artist being the means by which all errors can be and are corrected, whether in the negative or print. He makes no allowance for the great advance made by photographers in the art of taking negatives, who now may, instead of "making apes to retouch into men," make the negative so nearly perfect, that, instead of the artist having nearly all the work to do, he is left but a finishing touch, thus giving to the public that which is nearly a perfect photograph, and not a picture of which the photograph is the least part, thereby reducing the labor of the artist, and practically showing that photography has advanced some steps nearer perfection. No respectable photographer will offer "pictures without retouching," which are otherwise; and in the United States the retouching of negatives is not known as a practice, but only in the way of experiment.

Now, this advance in photography we prove in our specimens sent to the Exposition, without any retouching, either of the negative or of the prints. Yours, &c.,

DRAPER & HUSTED.

PHILADELPHIA, June 10, 1867.

We can fully indorse this communication, as

we know the work made by Messrs. Draper & Husted to be first-class. We have some of their negatives and some of their prints, which are excellent, and without retouching; as they say, retouching the negative is not practised here.—ED.

PHOTOGRAPHY IN WASHINGTON.—It is of real profit to pay an occasional visit to the *Photographic Department* at Washington. At the Coast Survey office, photography is made of great value in the hands of Mr. George Mathiot, who is well known to our readers. At the Treasury, Mr. L. B. Walker manages the photography, and at the Army Medical Museum, Dr. George A. Otis, the curator, with his photographic assistants, has permitted photography to assume a very great and important part of the work there. In their new quarters, Dr. Otis has liberally furnished the photographic branch with all of the necessary requirements of the very best quality. A new glass-house has been erected, of the most approved style; the best instruments, cameras, and materials only are used, and there seems to be everything there to make an operator photographically happy. Dr. Otis certainly deserves much praise for his tact and judgment in this direction. Photography is an important help to him, and he evidently appreciates it. The microscopic department is under the charge of Doctors Woodward and Curtis, whose manipulations have heretofore been described in our pages. A most perfect and beautiful apparatus is used, and we hope to describe it in a future issue. Photography saves our venerable uncle thousands of dollars each year, though it was some time before his worthy functionaries found it out.

MR. J. H. KENT, Brockport, New York, has sent us advance prints of a negative of a pretty young Miss, which he is printing for us. Nothing can be more sweet and lovely as a picture, and as a photograph we rarely see its equal. We have several other elegant specimens from Mr. Kent, which daily create quite a sensation among the visitors to our sanctum.

MR. A. K. P. TRASK, whose beautiful ferrotypes we noticed in our last, is at No. 159 and not No. 49 North Eighth Street, as our types made us say.

MR. E. M. ESTABROOKE, 805 Broadway, N. Y., has favored us with a parcel of large ferrotypes, which show great skill in their manipulation. Mr. Estabrooke strives to make his pictures works of art, and does not believe in the "16 for 20-cents" style, by any means. Added to their other merits, his pictures are non-reversed.

STEREOGRAPHS BY S. BEER.—In his letter from Paris, published in our last, Dr. Vogel speaks very highly of some stereographs. His manuscript letter accredited them to "S. Beer," but not knowing of any one by that name in this country, we supposed Dr. Vogel had mistaken the name, and meant Bierstadt, and we so printed it. A letter from Mr. Simpson, which we publish herein, also speaking highly of Mr. Beer's pictures, led us to suspect we were in error, and we find, upon inquiry, that Mr. S. Beer is an enterprising and meritorious photographer at No. 142½ East Broadway, N. Y. His special work, is the taking of interiors, and a number of his specimens lie before us, but, as we are much crowded again this month, we shall reserve some comments we have to make upon them until the next, when we hope to add some remarks from Mr. Beer, on the taking of interiors; meantime, let us give him the credit he deserves.

MR. W. E. BOWMAN, Ottawa, Illinois, has favored us with some very pretty stereographs of scenes in the West, embracing falls, ravines, deer-parks, and a picture of his own photographic coach, which is quite interesting with the rest. We are glad to see so many taking up outdoor work.

MR. WILLIAM NOTMAN, to whose inventive genius there appears to be no end, has sent us some cabinets of boating scenes at the sea-side: one representing a young lady just "pushing off," and another quietly seated on the edge of the anchored boat, *meditating*. The effect is very real, and the perspective admirably secured by the background. The photography is excellent, of course.

STEREOGRAPHS.—We notice, with pleasure, that many of our readers contemplate trying their hands at making stereographs this summer. Now, a word of advice to such. It is evident, from some of the collections we have seen, that the photographer thinks that, wherever he finds a level spot for his tripod, he may poke out his lens and fire away. In fact, it is the general rule, not to see how many *good pictures* one can get, but *how many negatives he can possibly bag in a day!* This is wrong. Carefully *select and study* your view, and make it under the very best circumstances. Better to make three real good pictures that will sell and do you credit, than a dozen of an indifferent character. Also, when you secure something real fine, duplicate or even triplicate the negative. Remember this.



MR. SARONY continues to make his excellent albumen paper in large quantities. He has recently adopted a new toning formula, which, he says, answers better than any other, and which he sends to all applicants. We have some exquisite prints by the new formula.

STEREOGRAPHS, &c., RECEIVED.—We have been favored by Mr. G. F. Gates, Watkins, New York, with two dozen very interesting stereographs of scenes in Watkins' Glen, hereinbefore described. Mr. Gates is a good photographer, but, in many cases, a little longer exposure and a little better lens would have added greatly to the merit of his views, and then a little less strongly printed would make his work perfect.

CAUTION.—A contemporary who advertises itself as the "oldest, cheapest, and best," continually uses our matter without credit. "A word to the wise," &c. May we ask: Is it "the oldest" because there is nothing *new* in it? "cheapest," because it cribbs from others without crediting? And "best," or the *better*, because there is so little of it? Who shall judge?

MR. C. L. OBST, Pittsfield, Illinois, has favored us with some more impressions of leaves and ferns, which are very fine. Mr. H. L. Bingham, Kalamazoo, Michigan, has forwarded a couple of cabinet portraits that for nice clean manipulation and graceful posing, are as good as one could desire. A few more accessories to break up the background, would add much to the merit of Mr. Bingham's cabinets.

VIEWS IN LAUREL HILL.—Mr. J. W. Hurn, 1319 Chestnut Street, has sent us a very charming 8 x 10 view in Laurel Hill Cemetery. It is hard to excel as a photograph, and is very beautiful as a picture. Made with the Zentmayer lens.

MR. WILLIAM NOTMAN has favored us with several 8 x 10 and cabinet portraits of a party playing the game of Curley on the ice, made in the gallery, with all the snow and ice accompaniments; an excellent photograph.

THIEVES, LOOK OUT!—We have received the following from the Post-office Department:

"Your letter, reporting repeated losses of the magazine published by you, is received, and, in reply, I have to say that the matter has been referred to a special agent for investigation.

"GEORGE W. McLELLAN,  
"2d Ass't Postmaster General."

THE Photographic Section of the American Institute appears to be prospering, judging from our New York correspondence. We are glad of it.

MR. R. EMERY, Napoleon, Ohio, on renewing his subscription, says: "Not being acquainted with your valuable Journal, I did not subscribe to it until last spring, thinking the price was too high. I have been taking 'cheaper' publications for several years, but they are too 'cheap' for me any longer."

We maintain that *our* Journal is "cheap," but not low-priced. Moreover, we believe it to be the "best." Mr. Emery could give us no better testimonial than he has.—Ed.

## Specialties.

NOTICE.—It will be understood that matter under this head is not to be considered as always having editorial sanction, though we shall endeavor to purge it of anything tending to deceive or mislead. Stockdealers will find this a beneficial mode of advertising, and sure to pay largely. Six lines, one insertion, \$2, and 25 cents for each additional line, eight words to a line—in advance.

### Ornamental Accessories.

J. A. PALMER, dealer in all kinds of photograph and ambrotype apparatus and materials. P. O. Box 529, Savannah, Ga. Inventors and manufacturers of photographic goods are requested to make arrangements with this house for the sale of their goods.

### Urns, Vases, Card Baskets.

CLEMONS' ALBUMEN PAPER.—So popular has the albumen paper become, manufactured by Mr. John R. Clemons at his new factory, No. 915 Sansom Street, Philadelphia, that other manufacturers are employing him to manufacture for them.

As unprincipled parties are substituting inferior paper for his, and advertising it at a price lower than good paper can be made for, Mr. Clemons desires to say that his genuine paper may be had, *in the East*, of Wilson & Hood, and George Dabbs & Son, Philadelphia; James Lett, Harrisburg, Pa. *In the West*, of B. L. H. Dabbs, Pittsburgh, Pa.; L. B. Darling, Cincinnati, Ohio; Rice & Thompson, Chicago, Ill.; W. H. Sherman, Milwaukee, Wis.; J. E. Whitney, St. Paul, Minn. *In the South*, of R. Walzl and

William King & Bro., Baltimore, Md. None genuine unless stamped "Clemons."

Plain paper always on hand salted, and salted for the trade. Every sheet of paper warranted.

JOHN R. CLEMONS,

Manufacturer of Photograph Papers,  
915 Sansom St., Philadelphia.

— " \$50 REWARD.—LOOK OUT FOR THE THIEF !—

A man by the name of W. B. DAVIS, is going through the country, professing to be the inventor of a direct porcelain process, and using, as references, the names of Waldack, Vanloo, and Winder, of Cincinnati, and others of St. Louis, Missouri.

"He represents to have been 'robbed,' 'blown up on a boat,' or any other story to get to stay with you over night; or, work for you a day or two, and then rob you of what he can get.

"On Thursday, June the 6th, he came into my gallery, at New Richmond, and told me he had been robbed at Hamilton, Ohio, of his pocket-book and valise—was operating in Parkersburg, Virginia, and was footing it to Portsmouth, Ohio, where he had relatives—was very tired and hungry, and wanted to stay with me. I gave him his dinner, supper, and breakfast, and kept him all night, and then gave him money to take him to Portsmouth. Saw him on the boat, but he got off at Moscow, Ohio, eight miles above, and staid all night. Saturday night he was seen by several, back in New Richmond again. That night my gallery was robbed of one 8-4 Voigtlander & Son's tube; one  $\frac{1}{2}$  H. B. & H. Tube, central stops; also, one 4-4 tube, no name on.

"I will give the above reward for the capture and conviction of the thief, and recovery of the tubes in good condition; or \$20 for his capture and conviction.

"He is about six feet tall, well built, very straight, and wore a long waist frock-coat, about two-thirds worn, black cloth, and torn and darned in front and under the arm; about twenty-five years of age, and fair complexion.

"I will send his photograph to all willing to aid in his detection. Address,

"WILL. DICKINSON,

"New Richmond, Clermont County, Ohio."

The above comes to us through Mr. L. B. Darling, stockdealer, Cincinnati, who indorses Mr. Dickinson, and further says, that about fifty of his customers have been victimized by this scoundrel. His photograph may be seen at our office, and we hope all will aid in his detection. We hope this will prevent further rascalities on his part and lead to his arrest.

NOTICE !—What follows will be of value to our subscribers. The following permanent injunction was obtained against the instrument known as "GALE'S SOLAR CAMERA," and is hereby published for the information of all whom it may concern :

DAVID A. WOODWARD v. GEO. W. H. TAYLOR, in the Circuit Court of the United States for the Fourth Circuit, in and for the District of Maryland. In Equity.

THIS case being submitted for final decree, it is, this eighteenth day of April, A.D. 1867, adjudged, ordered and decreed, that the injunction heretofore granted in this case, be, and the same is hereby made permanent; and that the defendant be, and he is hereby restrained and enjoined from *making, using, vending, or in any wise counterfeiting or imitating* the "SOLAR CAMERA," or invention named in said bill of complaint, *or any part thereof*, or any instrument for Photographic purposes made in accordance therewith.

WILLIAM F. GILES.

I, JAMES W. CHEW, Clerk of the Circuit Court of the United States for the Fourth Circuit and District of Maryland, do hereby certify that the foregoing is truly taken and made from the original now on file in the said Circuit Court.

In testimony whereof, I have hereto subscribed my name, and affixed the seal of the said Circuit Court, this 18th day of April, Anno Domini 1867.

[L.S.]

JAMES W. CHEW,

Clerk Circuit Court.

A suit is now pending against Shive's Solar Camera which will be decided at the November term of the U. S. Supreme Court. Photographers, about to purchase Solar Cameras, should be careful not to purchase an infringing instrument. I have made arrangements with Mr. H. Roettger, of Philadelphia, to use my patent, in connection with his Solar Camera.

D. A. WOODWARD.

PETER PARYS' NEGATIVE COTTON.—We are using Peter Parys' Negative Cotton, and find it gives general satisfaction by its regular intensity and extreme solubility.

F. GUTEKUNST,

O. H. WILLARD,

F. A. WENDEROTH,

HENRY MANGER,

WM. H. MORGAN,

W. L. GERMON.

For sale by WILSON & HOOD,

Stock Dealers, 626 Arch Street, Philada.

GEO. DABBS & SON,

Photographic Stock Dealers, Philada.

A FIRST CLASS GALLERY for sale in Omaha, Nebraska. The best town in the West.

For particulars, address E. L. EATON,  
Omaha, Neb.

FOR SALE.—A rare chance. The best located Gallery in Chambersburg, Pa. Elegantly furnished, doing a good business, splendid reception and operating-room, with three other work-rooms. Contains one extra 4-4, one  $\frac{1}{2}$ , one  $\frac{1}{4}$ , and one gem instrument. Price \$650.

Address Mrs. J. H. KAUFMAN,  
Chambersburg, Pa.

FOR SALE CHEAP.—One Good Lewis' Patent Glass Bath Dish, 15 by 21. Also, One Mammoth Camera Box, Stand, and Tablets for Plates, 10 by 12 to 18 by 22.

Address WILLIAM E. BOWMAN,  
Ottawa, Illinois.

AMERICAN PHOTOLITHOGRAPHIC Co.,

Cor. 3d Av. and 10th Streets, S. Brooklyn.

WANTED—A very good Operator to make negatives. Address, with references as to *capacity and character*,

J. W. OSBORNE,  
Superintendent.

PHOTOGRAPHIC CARRIAGE FOR SALE.—A photographic carriage, nearly new and complete in its fittings. For particulars, address

J. B. AIKEN,  
Franklin, N. H.

FOR SALE.—A first-class photograph gallery, in one of the best locations for business in the city; a splendid reception-room up one flight; glass and work-rooms all well furnished; good entrance; rent low. Price, \$1500. For particulars, address

T. BARBOUR,  
88 Hanover Street, Boston, Mass.

ERASTUS B. BARKER, for a number of years with Willard Manufacturing Company, desires us to say that he is now with Messrs. E. & H. T. Anthony & Co., where he will be most happy to see his friends, and to give attention to their orders.

CHARLES COOPER & Co., No. 150 Chatham Street, N. Y., have opened an office on the first floor, and no longer require their friends to climb three flights of stairs to see them. They have also established a new laboratory at Newark, N. J., and are prospering. The reason? Their chemicals are reliable and good. The Helion cotton they now manufacture is better than any ever made before.

MOCK FURNITURE.—Messrs. E. & H. T. Anthony & Co. claim, as *their* special get up for the new size, their beautiful changing furniture.

It is astonishing, what beauties are enveloped in one piece of furniture. Don Juan, with his album of loves, could not rival these. Price, \$80. Who would not have a whole set of parlor, drawing-room, and office furniture, when it can be had so low? See advertisement.

The Scovill Manufacturing Company have adopted the plan of sending their wholesale customers confidential printed circulars each month, giving quotations for leading goods, and information of changes in prices, &c. This is an admirable plan, and a great help to those who cannot visit New York monthly to get posted up. It is a first rate fixing process, and develops a good deal of trade.

THE AMERICAN OPTICAL COMPANY.—The officers of this really useful and indispensable company, carry on their immense business so modestly and so silently, that one would forget them after having his wants supplied by them, were it not that working with their apparatus creates such a feeling of pleasure and satisfaction, that the maker is constantly brought into grateful remembrance. One of their stereoscopic boxes is our own especial pet. "A thing of beauty is a joy forever," reads the old adage, and it is very applicable to the American Optical Company's productions. They are beautiful; it is a joy to use them, and they will last forever—almost. The stockdealer never has them returned to him, and the photographer never finds them deficient. Always secure their goods, and you will have no breakdowns.

THE WILLARD LENSES.—The Willard Manufacturing Company, 684 Broadway, N. Y., are now producing some most exquisite photographic instruments. Their 4-4 lenses are specially ground for the new cabinet portraits, and the work obtained by them is far better than those who use them ever hoped to make.

SECOND-HAND TUBES FOR SALE.—A Jamin  $\frac{1}{2}$  size, first rate for cards and ambrotypes; a  $\frac{1}{4}$  Jamin view attachment; a pair of  $\frac{1}{4}$  Jamin portraits, lenses, and box. None of them used much, and all in good order. For sale low.

WILSON & HOOD,  
626 Arch Street, Phila.

ROETTGER'S NEW VIEW LENS.—We have been shown some excellent outdoor views made with the new Roettger Combination, and look anxiously for the result of the investigations of the Committee of the Philadelphia Photographic Society.



WE have received from Mr. R. Goebel, St. Charles, Mo., a very excellent 7 x 9 view of the Convent of the Sacred Heart, at that place. It was made with the reversed front lens of a 2-3 Voigtlander in twenty seconds, and is quite sharp and good. The printing is also carefully done.

THE AMERICAN ARTISTS' ASSOCIATION.—From the East, West, North, and South, orders continue to come to this new association, proving that such a convenience was needed, and that it is appreciated. The following is an example only of the rapidly accumulating testimonials received by the managers.

"The two colored cabinet photographs have been received, and I am glad to say to you they give entire satisfaction, both in regard to likeness and execution.

"C. W. MOTES,  
"Athens, Ga."

WILSON & HOOD, Managers,  
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PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.—520 Walnut Street, Third Floor, Front Room. Meeting on Wednesday evening, Oct. 2, 1867, at 8 o'clock.

COLEMAN SELLERS, President.  
F. A. WENDEROTH, } Vice-Presidents.  
A. TILGHMAN, }  
S. FISHER CORLIES, Treasurer.  
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BERGNER'S PRINT-CUTTERS FOR THE NEW SIZE.—Now ready. Recommended highly by Wm. Notman, Montreal; John Carbutt, Chicago; John S. Notman & Co., Boston.

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TO THE PHOTOGRAPHERS IN THE SOUTH!!

LAND'S STANDARD PHOTOGRAPHIC CHEMICALS.

Manufactured by W. J. LAND, Chemist, Columbus, Geo.

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IMPORTERS OF GLASS AND PORCELAIN, APPARATUS, ETC.

T H E

# Philadelphia Photographer.

Vol. IV.

AUGUST, 1867.

No. 44.

## VARIABLE PERCEPTIONS OF DISTANCE.

BY M. CAREY LEA.

It is a curious fact, and an unquestionable one, though I do not remember to have ever seen it adverted to, that different persons must see the same objects, the same landscape for instance, very differently. Although the differences in the focal lengths of photographic lenses are, of course, much greater than those which exist amongst the focal lengths of human eyes, still, the differences are of the same character, and even the latter are often very great. We all know that the relative proportions of objects at different distances, as represented in a photographic picture, depend, to a very great extent, upon the focal length of the lens. The same law must hold good with the picture made by the crystalline lens of the eye upon the retina.

With a lens of very short focus, the whole force of the picture is collected from the foreground. The nearer objects acquire a size and importance which they do not really possess in nature, the distance is dwarfed down into nothing. The distant mountain appears a mere hill, whilst a house in the foreground may appear to be of twice its true proportionate size and height. An object a hundred feet from the camera is represented in the image as

perhaps two hundred or three hundred feet off.

With a lens of long focus, such as large orthoscopic objectives, precisely the reverse of this is seen. The background is all dragged forward, the hills in the distance become actual mountains, and seem to be in the middle distance, instead of the extreme. Perspective, which in the very short focus lens, was greatly exaggerated, seems here entirely done away with, and all the objects, front and back, are huddled together in a confusing and most unpleasant way.

This is, of course, nothing but what every careful observer has noticed, and indeed no one can look at the same landscape reproduced by lenses of very different focal lengths, without noticing something of the sort, however unobservant he may be. But I here simply remark that *there is no absolute standard of correctness* in these matters. Crystalline lenses vary like photographic objects, though within narrower limits.

What lens, then, gives a correct representation of a scene? All, and none. A lens whose focal length corresponds with the distance at which I see most plainly, gives a picture which corresponds with that which I myself perceive in looking at the landscape. But does it follow that this picture will have the same property with respect

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to the next observer? Certainly not. If he is shortsighted, the effect of that picture will be to make distant objects look nearer than he sees them, and conversely.

Habit, experience, and an interchange of ideas, lead us somewhat to control and regulate our perceptions. Blind men who acquire sight by surgical operations, endeavor to touch the most distant objects, and are surprised to find that they cannot. We all remember him who at first "saw men as trees, walking." Those who are born and bred in mountainous countries, and habituate the eye to discern accurately at long distances, acquire the means of judging correctly. Those who live in cities, and whose view is bounded during almost the whole of their waking hours by four walls, acquire powers of sight proportionate to their habits. How many shortsighted men and women we find in cities! but whoever heard of a short-sighted American Indian or Tyrolese peasant?

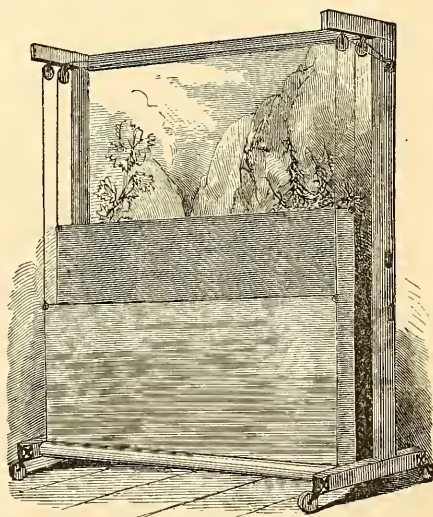
Taking, then, men as they are, with their powers of sight modified by habit, extending often through generations, we cannot doubt but that scarcely two see a landscape exactly alike. That a picture which accurately represents a scene as perceived by one person, does not do so for another. That, as I said before, there is no abstractly correct representation of any given object or collection of objects. There is, of course, a medium perspective, corresponding with the average of eyes. A lens of nine or ten inches focal length produces pictures which are the representations of scenery, as perceived by a vast proportion of eyes, and not varying much from any but unusual and exceptional cases.

It is, nevertheless, a curious reflection, that two persons standing together and observing the same landscape, do not see it alike, but are, in fact, as differently impressed by it, and perceive it as differently as if one person were successively to look at two photographs of it by different lenses. This difference in perception seems to increase with the distance of the object. It is probable that two persons who observe the same near object, taken alone, see it very nearly alike, at least with differences of perception much less remarkable than when the dis-

tance is increased. As soon as the object is removed farther, the difference augments, and a very familiar, and yet striking proof of this is found when the object becomes very distant, as in the case of the moon. To some eyes, the moon in the zenith seems as large as the top of a barrel, others compare it to a large round dish; again, others to a plate; others yet, liken it in size to a saucer, and from this down through all gradations, to some who see it look no larger than a silver quarter of a dollar. Which of these is right? All, and none; each for his own eyes, no one for those of others.

### Hull's Device for a Background Frame and for a Washing-tank.

PHOTOGRAPHERS who are crowded for space, often find trouble in changing their backgrounds from place to place, and, frequently, it is impossible for them to find room for using more than one, much to their inconvenience. The following device is the invention of our friend, Mr. Charles Wager Hull, of New York, who does not patent it, but freely presents it to us for the benefit of the craft at large. While we thank him heartily for such a useful plan, we must not fail to compliment him on his



ingenuity and generosity. The idea is excellent, and, moreover, it is entirely practi-

cal. Be the glass-room ever so large, one does not want it filled with background frames. This device obviates such a necessity, because three, four, or more backgrounds may be all mounted on one frame.

After looking at the diagram, it will be very plain to you and speak for itself, but may be briefly described as follows: Mr. Hull says:

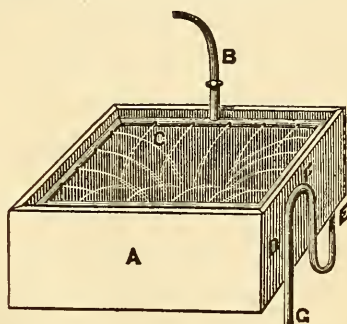
"The usual frame is used, on which the landscape or fancy background is stretched permanently. In front of this, and between the feet of the frame, put two spring-rollers; on one of which place the background for plain photographs, and on the other the white muslin one for ambrotypes. A third roller can be added for a screen of either lighter or darker shade, if required. The two will doubtless answer for most photographer's wants. The best roller that I know of, is Hartshorn's patent, working with a spiral spring, the barrel of the roller being of stout tin, so that there is no twisting, as is always the case with wooden rollers. They are drawn up by cords attached to each end, as seen in the figure; consequently, out of the way when making a picture. In using this, as in other backgrounds, the base-board will have to be placed in front of the rollers to hide them. By this simple arrangement, much trouble will be saved, as the job of shifting backgrounds for different subjects will be done away with, and will be, to the photographer, a saving, as, when not in use, they can be rolled up, and be out of the way of all harm.

"Along the top of each rolling-screen, it will be necessary to place a bar of wood, so that it will not bend in the middle, but keep straight and tight. On the side of the frame, the cords are fastened when the screen is drawn up."

It will be perceived that in this way the photographer may obtain almost any depth of color in the background he may desire, by changing them during exposure, and paying some attention to the strength of the light. No doubt, it will be found useful in many ways, and Mr. Hull will be universally thanked.

This, however, is not the first time he has

placed the craft under obligations to him. The very useful washing-tank described below, is his invention, and was given to the craft in 1859, through a contemporary. It has been since *patented* in England, by a man named *Bull*. That every one may know to whom they are indebted, and believing it will be new and of use to many, we give the description and diagram below:



Being entirely self-acting, it requires no care or attention. It consists of A, a water-tight box of any shape; B, a feed-pipe with a faucet; C, a lead-pipe around the inside, perforated with small brad-awl holes, through which the water is evenly sprinkled upon the prints to be washed. A tray of wire, or a network of twine, or any suitably perforated diaphragm, may be placed above and near the bottom of the box to receive the prints. A syphon enters the box through a hole in the bottom, having a broad flange of lead which is nailed to the bottom, then passes down sufficiently to make a suitable curve to the point F, which should be one or two inches below the top of the box; here it curves again to G, or any point below the line of the bottom of the box. The longer the leg D of the syphon, the faster will the liquid flow. It is generally connected with a waste-pipe carrying off the washings into the sewer, and the feed-pipe may be connected with the street-mains, or with any suitable reservoir above the box.

The successful action of the apparatus depends upon the relative size of the feed-pipe and syphon; the former should be smaller than the latter; then, as soon as the box is filled by the action of the sprink-



lers up to the top of the syphon F, the discharge will begin and go on rapidly until the entire liquid contents have run out; then the syphon will cease to act till the box fills up again, when it will be discharged again in the same way.

The superiority of this over ordinary tubs for the purpose, consists in its completely emptying itself at intervals, so that every fresh change of the liquid is pure and free from contamination with previous charges, a point of great importance in washing photographic prints.

### Taylor's Method of Photographing Engravers' Blocks.\*

As a faithful servant is to his master, so is photography rapidly becoming to the arts and sciences. It ever stands ready with willing hands, and when a difficult work comes up to be done, our *precious* art steps in and says: *I will do it for you*, quickly, accurately, and cheaply. We who cater to the literary wants of the public, must frequently use diagrams. They tell more than pages of printing do, and are sometimes wanted to be done in a great hurry, in order to issue in good time. But when we have to *coax* an artist to make the drawing, and make the engraver work when he ought to be in bed, it is no pleasant thing to do. Photography comes to our aid, however, just where we want it; saves hunting up the artist and the time he requires to make the drawing, and enables the engraver to get it done sooner, to bed earlier, and the magazine to suffer no delay.

Photographing on wood is not a new invention, as our readers remember the process described in our last volume, page 215; but the following method will be found an improved one, and is the invention of Mr. Benjamin F. Taylor, of our city, who is daily using it at his rooms in the *Press* Building, Seventh and Chestnut Streets.

Mr. Taylor's claims, laid down in his specifications, are as follows:

"The nature of my invention and im-

provement consists in producing a right impression on negative plates, by means of a reflector attached to a camera, which plates are brought into contact with blocks or plates of wood, stone, or metal, to give a reverse impression for the use of engravers.

"I will premise that it is a well-known fact that when a prepared plate is placed in a camera, a reverse impression is obtained, and that if this is transferred to an engraver's block or plate, the result will be a right impression, which is the opposite of what is wanted. Consequently, engravers hitherto have had to resort to draughting or tracing to get the reverse impression. My object is the dispensing with this additional work, by bringing into use the following mode, viz.: To get a reverse impression on the block or plate, I take a right impression on the negative plate, by means of a reflector placed in front of a camera at an angle of forty-five degrees, more or less. I then place the face of the plate in contact with the block or plate to be engraved, which has been previously coated with a solution made of the following ingredients, viz.: plain collodion, 8 ounces; nitrate of silver, 100 grains; chloride of strontia, 25 grains; citric acid, 20 grains. I then make the coating permanent by immersing the block or plate into a fixing bath containing a solution of hyposulphite of soda.

"Having thus fully described my improved mode of photographing engravers' impression blocks or plates, what I claim therein as new, and desire to secure by letters-patent, is—

"The use of a reflector with a photographic camera, for obtaining a reverse photographic impression on blocks of wood, stone, or metal, for the use of engravers, the said blocks or plates being coated with the solution above specified, or its equivalent, to receive the impression from the negative plates, substantially in the manner hereinbefore described.

"Patent applied for May 17th, 1866."

The following figures are of two of the new ornamental vases manufactured by Messrs. Wilson & Hood of our city. A negative of them was made by Mr. Taylor to illus-

\* Patented February 19th, 1867, by Benjamin F. Taylor, of Philadelphia, assignor to himself and George Taylor, of Camden, N. J.



trate practically his process, printed upon the block, and the engraving done in about six hours. As the engraver had only the photograph to work from, its accuracy may be readily imagined. We expect our readers will be frequently treated to examples of Mr. Taylor's skill in this direction.

### PHOTOGRAPHS IN NATURAL COLORS.

Two months ago we announced that one of our subscribers had written us that he had succeeded in taking pictures with natural colors. The party alluded to was Mr. A. Paage, Bowling Green, Kentucky.

Mr. Paage's experiments have been made on collodion films and on paper. Of the first, he has sent us specimens, but whether the colors have faded out or not we do not know; we cannot find anything but the usual appearance of collodion positives.

His results on paper depend, like most other color processes on paper, upon the action of light upon chloride of silver. Herschel showed, many years ago, that paper prepared with chloride of silver, and exposed under colored glass, assumed the color of the respective shades under which it was exposed. Many persons, unaware of these experiments, have repeated them, and supposed that they were original discoveries.

Accounts of Herschel's, Becquerel's, and other experiments, will be found in all the

larger text-books (Van Monckhoven, Towler, &c.). Mr. Paage's details differ a little from those here referred to:

"I will give you an account of several experiments which led to the adoption of two different formulæ, both of which I will give here. As the last was more difficult to manage, and required longer exposure, I have paid but little attention to it. I believe, however, it is capable of fine results if once understood.

"The experiments I give, so that you may the better understand the nature of what I claim as discoveries.

"One of the first experiments that led to a successful result was:

Water,	. . . . .	1 ounce.
Nitrate of Silver,	. . . . .	60 grains.
Nitric Acid,	. . . . .	10 drops.

On this float plain photo paper, and dry; then immerse in (C. P.) hydrochloric acid; dry again, and expose under colored glass. Result, very brilliant colors. The same with a weaker hydrochloric will give colors by holding the paper in the light till it is of a light purple, then placing it under colored glass.

"Lastly, leave the paper in the light till of a dark purple, then moisten with bichloride of mercury; then expose under colored glass; the part exposed to light will turn white very rapidly, but that under the colors will retain the colors for a short time."

### On the Effect of Varnishes Applied to Silver Photographs.

BY F. A. WENDEROTH.

IN Nos. 367 and 369 of the *British Journal*, articles appeared treating on the effect of varnishes on silver photographs, giving the results of experiments made by Mr. Blanchard, and the opinion of the editor. As silver printing is so convenient, and its results so beautiful, it is of the greatest importance to all that the products thereof should be as near permanent as

possible. Under certain circumstances they are permanent enough; but if they could be made *absolutely permanent* with only a little more labor and expense, it would be to the interest of photographers to adopt any device that will accomplish this very desirable object.

In the year 1854, when I first took up photography, I varnished a number of prints in the following manner. After they had been mounted, I coated them with a rather thin solution of gelatine, and when dry, varnished them with Demar varnish. Of a dozen of these prints still in my possession, not one shows any sign of fading, whereas, several others made at the same time have changed.

Ever since the introduction of cartes de visite, I have been using a varnish for colored albumen photographs, for the purpose of rendering the coloring water-proof.

About eighteen months ago it occurred to me, that the same varnish might be employed to render plain photographs more permanent. Consequently, I prepared a number of prints in many different ways, each of which was cut in half, and one-half nailed to the wall in my painting-room, the other on the wall in the wash-room of my photographic establishment. In this wash-room there is hot and cold water used all day, until 10 o'clock at night. There are at times fumes of nitric, sulphuric, and hydrochloric acids, of cyanide of potassium, of hyposulphite of soda, &c. Adjoining this room, with the large connecting doors always open, the chloride of gold used at our establishment is manufactured; silver baths are boiled down, and sundry other chemical experiments carried on. In such a place, I consider the test a more severe one than when exposed to the action of any one single agent.

One of the prints alluded to was mounted with very sour starch paste, and one-half had the outside covered with the same material. All the test prints were one-fourth without protection; one-fourth with the back varnished (before mounting); one-fourth only with the front varnished, and the other fourth was varnished *back and front*. After eighteen months' exposure the changes have been found very decided.

The unprotected fourth has faded very much all through, and turned quite yellow. The quarter varnished from the back comes next; then the quarter varnished from the front, all changed more or less; whereas the quarter that was protected front and back is not affected at all.

The parts which had been kept in the painting-room show no changes, not even the one that had been mounted and covered with sour starch, and there was no difference perceptible in the prints mounted with fresh gum arabic and fresh starch, and sour gum and sour starch.

Opalotypes on albumen, submitted to the same treatment, gave exactly the same results, but in a more decided way. Some of these had had three hours' and some six hours' washing after fixing. Those washed three hours had faded fifty per cent. more than those washed six hours; and even those with three hours' washing, kept in the painting-room, and unprotected by the varnish, showed signs of fading.

These experiments show conclusively that to resist the more effectually, the prints should have the protecting medium on both sides.

The varnish used gives no gloss, and leaves no marks on plain paper; has no prismatic colors, and will fix pencil, charcoal, crayon, and water-color drawings. If I had not sold the receipt for making it several years ago, to a firm in this city, it would give me pleasure to publish it. It is my belief that a collodion varnish is superior to gum or resin varnishes, provided the collodion is of a tough structure. To satisfy myself in this respect, I submitted prints differently varnished to the action of a solution of cyanide of potassium, which the collodion varnish resisted twice as long as any of the others.

The best way to apply it is to pin the print to a board, and to float the varnish (which should be rather thin) over it: then turn it and apply it to the back in the same manner.

The protection the varnish had given to the mounts on which the prints had been mounted, and which, both in the painting and wash rooms, had turned yellow where not varnished, was remarkable.



Referring again to negative varnishes, I forgot to state in my notice published in your last, that by floating a thin solution of gum arabic over the negative after washing, and before drying, no varnish will reduce its strength.

### CABINET PORTRAITURE.

EARNESTLY desiring that the interest in the new cabinet portrait should not flag, a few remarks of encouragement here will not be out of place. That the new size had to fight its way to popularity, we do not deny. So much the greater the triumph then, when we tell you it is becoming a brilliant success! When the size was first suggested to us, we saw its advantage, and at once began to urge it upon our readers for several reasons. First, we believed it would revive a declining business. Second, we believed that the size would give the photographer more chance to display good taste and skill in his work than the cartes do, and thus have a gradual but sure tendency to improve the photography of this country. Third, we believed the introduction of a new and popular picture would enable us to relieve ourselves from the thralldom of low prices and the attendant degradation of our beauteous art.

We are assured that we were right in our conclusions. The cabinet portrait is becoming a great favorite, and the demand is increasing continually. Photographers like it, their customers are pleased with it, and, of course, this is profitable.

Those who have taken it up in earnest, are astonished at the elegant results they are able to produce. We are ourselves more than surprised at the talent which we find has been lying undeveloped in our country, until the minds of our artist friends were fixed upon trying themselves on the new picture. We had settled down, all of us, to one monotonous, non-attractive style of work. A few chosen positions were worked every day, and what was the style of one, was the style of the other, the difference only being in the mechanical part of the labor. But now, how different! Let us take, at random, from our already large collection, a dozen cabinet pictures, by as

many different artists, and tack them up in front of us where we can all see them. Did we ever see anything more beautiful in photography? Such careful lighting, such tasteful arrangement of the sitter? Such good judgment in introducing the accessories? Such an apparent earnestness throughout to improve and to excel all former efforts? No! Is it surprising, then, that we should feel that there is a bright future for photography in the new size? You will say it is not. And yet you remember how coldly you received our early suggestions on the subject. How indifferently you admired the elegant specimens we gave you in our January, April, and even May, numbers, saying: "They are very pretty if they will only take." How much it went "against the grain" to have calls for "cabinets" from your good customers, who were, and always are, ready to encourage anything new and good in photography, and to tell them that you were "not making them *yet*," and to see them go to *your more enterprising neighbor* for them. How much better you feel, now you are making them, and aiding in securing for them the popularity that will surely be obtained for them. Half of you never expected to make such beautiful work as you are now making. It shows what you can do if you will try, and what a good thing it is to have a *new size and style* to spur you on and to encourage you.

Now you find there is a chance of success, earnest reader, see that you leave no stone unturned in your efforts to make the success entire. An artist in England has adopted the plan of sending a specimen to his best customers, accompanied by a circular stating the advantages of the new style. This is an excellent plan, and will pay well. Such enterprise is sure to bring its reward. Fear not. Try it.

We have watched this movement closely, not only among photographers, but among those who cater to the wants of them.

After some persuasion, Mr. Collins, of our city, made a few styles of mounts for the new picture. He has now greatly multiplied them, and can scarcely keep up the supply. The Anthonys, in New York, and Mr. Flint, in our city, kindly made albums for us, and thus helped the movement con-

siderably. Since they, by their enterprise, have shown that the thing will go, several other album manufacturers have taken steps to share the profits of the new photographic "sensation." At first, it was next to impossible to secure a suitable background. You can now secure all styles. The little tasteful accessories that were needed, were hard to get. Wilson & Hood are now turning them out in beautiful styles by the hundred, so that all may be supplied. Mr. Knell has taxed his energies in producing some beautiful chairs which are just the thing, and photographs of mock furniture will be sent by Messrs. E. & H. T. Anthony & Co.

After the pictures are made, forget not the large assortment of frames by the Scovill Manufacturing Company, nor the show-mats of the Pattbergs. We have all we can desire in this line.

The thing is sure; *push it*. Not only is this so in our own country, but in others. In France, the rage for the new size is immense. We have been shown a whole album-full, made by Mr. S. A. Cohner, Havana; and in England, after the same opposition that was met here having been conquered, the success of the cabinet portrait seems certain. This has been accomplished in a great measure, by the earnestness of our friend and co-worker, Mr. Simpson, editor of the *Photographic News*, who shares our desire to promote the interests of photography wherever he can.

Some vile person or persons, not sufficiently gifted by nature to enable them successfully to make respectable work, have hinted that Mr. Simpson was "writing up" the new size from sinister motives, or "for an object." As his remarks in reply to these insinuations may apply to some on this side of the Atlantic, and at the same time contain some good thoughts for us all, we extract them:

"But for whose specific advantage has the size been 'written up'?" For whose advantage could it be but that of the professional photographer? Photographic portraitists generally can alone receive any specific advantage from such a movement, and, so far as it is of advantage to them, it will be, in some degree, of advantage to manufacturers and

dealers, and all trades in any way dependent upon the success of photography. To promote the success of professional photographers specially, and of the art generally, has been, then, the object of our frequent and urgent recommendation to photographers to act with unanimous concert in giving impulse to a new and very pleasing form of portraiture. But as this is our object in all that we write, why should a question have arisen as to the purpose of recommendations the object of which was so transparent and natural? To this question we can make no answer, beyond suggesting that the originator of the remark is possibly familiar with other motives of action.

"As to the other question, whether we agree with the allegation that cabinet pictures will never take in this country, we may simply remark that such an observation is sheer nonsense. Wherever they have been well introduced they have already taken in this country, many provincial photographers having established a good connection for such pictures. Of one thing our correspondent may be certain: they will not take unless they are introduced, and if he be sufficiently well engaged not to require any new impulse to his business, we scarcely counsel him to trouble himself about the matter. If his business be dull, and he does not introduce novelties until he is well assured beforehand that they will take, it is tolerably certain that cabinet portraiture will not be a success with him, and we think that he need not be in much doubt as to whose fault it is. Success rarely runs after any man; and he who runs after success will rarely gain a good position if he wait to see that it is perfectly safe and certain before he join in the race. He who would deserve success and secure it, should help to make it. The advantage to be derived from the cabinet portrait movement depends entirely upon photographers themselves. It can be made a success if they resolve that it shall be so.

"Although it was originated in this country, it is already more successful everywhere else than in this country. It is successful in Paris, and many excellent examples are shown in their department of the Exhibition, whilst in the English depart-

ment such a thing is scarcely to be seen. In America they are becoming a great success. Some of the finest examples of photography we have seen are Mr. Notman's cabinet portraits. Our motive for "writing up" the new size having been questioned, it is perhaps worth while to inquire the motives for neglecting to aid a movement which promises to be beneficial to professional photographers. There are three motives we can conceive. First, having sufficient business not to require a novelty to give a new impulse. Of course to this there is no answer to make. If a portraitist have as much business as he desires, no one can complain that he does not take steps to obtain more. Secondly, apathy, indifference, and a conviction that the new size will not take. To these reasons there is no answer to make. The photographer giving them is alone the sufferer, and if he be content, no one else should complain. Third, we can understand that some shrink from the attempt, feeling that to make good cabinet pictures will require more thought and more artistic skill than to make good card pictures. We believe they are right. But surely those with this appreciation of artistic difficulties will not shrink from them. There is more room for art than in the card picture, and the result, when successful, much better repays the effort. A thoroughly good cabinet portrait is a really charming picture, well worth a little trouble in securing."

We heartily indorse all that our excellent contemporary says, and in confirmation of his last remark, refer to our picture herewith.

### PHOTOGRAPHING INTERIORS.

IN our editorial columns last month, we noticed some stereographs made by Mr. S. Beer, 142½ East Broadway, New York, promising to say more about them in the future. Before us lie about twenty of these pictures, which are really remarkable in their way, being entirely of *interiors*. This class of work, Mr. Beer has made his *specialty*, and he has been most successful. He has also opened up a new and useful field for photography, which his work will make very popular, sooner or later. We have here a view of Wheeler & Wilson's ma-

chine-shop, taken at an angle of 90 degrees, and everything mathematically correct and sharp, from one to five hundred feet distant. In addition, we have other machine and workshops, basements, warehouses, vestibules, parlors, music-halls, hotel dining-rooms, engine-rooms, &c. &c., in wondrous variety, all showing skilful and harmonious illumination, and all objects therein well-defined, such as lace-curtains, machinery, fancy earthenware, all bright and fine, and without the use of artificial light. In one of the parlor views one can almost read the music-sheet lying open on the piano. In the view of Steinway Hall, taken from the rear, the numbers on the backs of the seats may be distinctly read as far as the naked eye can reach. We wrote to Mr. Beer for his method of procedure, and received the reply that it was no secret, it being similar to that published in our volume iv, page 33, February, 1867, accompanied by the *judgment* which all must exercise if they would make good work,—clean apparatus and good chemicals. Mr. Beer uses 2½-inch focus Globe lenses, and gives good long exposures. He albumenizes his plates and iodizes his collodion with—

Iodide of Ammonia, . . .	5 grains.
Bromide of Cadmium, . . .	3 " "

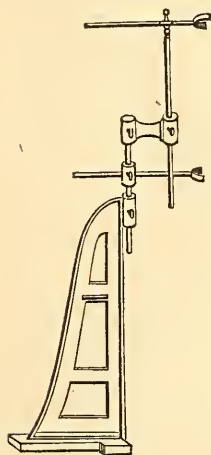
The bath is used from 38 to 45 grains strong, and should be kept in accordance with the age of the collodion, a fresh collodion needing a stronger bath than an older one, though old collodion is not good for interiors. Use the iron developer, and fix with hypo. To acidulate the bath, use either acetic or nitric acid. In very dark places, with no light in front of your lens, there is no fear of over-exposure, 15 minutes being sometimes given in such cases. Where the light is in front of the lens, the curtain or window-shade should be alternately raised and lowered during the exposure, to prevent solarization.

Success depends upon the contingencies stated. Those who cannot produce good and brilliant portraits, will fail with interiors. First learn to master your chemicals, and you can then master almost anything photographically.



## HARRISON'S HEAD AND BODY REST.

A REST was exhibited at the last meeting of the North London Photographic Association which is remarkable for embracing the best qualities of the rests now in common use. Its adjustments are almost universal, and this quality is not attained at the expense of intricacy of mechanism or complication of parts; for its mechanical features are extremely simple, and, as a consequence, not liable to derangement. Its inventor and maker is Mr. James Harrison, of Leeds, a gentleman whose name we recently mentioned in connection with some very beautiful portraits of children which we had received from him. The rest is at once a body-rest and a head-rest, and, as will be seen from the annexed diagram, it is susceptible of the most



varied adjustments. The frontage presented to the camera is small, and consequently it can be easily hidden by the person of the sitter from the gaze of the lens. Its vertical adjustments appear to be suitable for sitters of all proportions—from *Chang* down to *Commodore Nutt*.

There is a special feature in this rest which we do not remember to have

seen formed in quite the same way in any other, viz., a swivel or joint permitting the horizontal rod at the top, to which the head-piece is attached, to be placed at any angle, and pointed either upwards or downwards. This, combined with the other features present in the head and body rest now briefly described, cannot fail of securing for the apparatus the commendation of practical photographers.

We may add that in the rest which we examined, the workmanship was very excellent, and is not calculated to bring any discredit upon Leeds, a town which has ac-

quired a wide and just celebrity in connection with the manufacture of photographic chemicals and appliances of various kinds.—*Br. Journal*.

## REINFORCING NEGATIVES.

BY M. CAREY LEA.

HAVING been asked respecting a process published by me some time back for this purpose, and, as it has never appeared in the *Philadelphia Photographer*, I give here briefly the details.

There are certain difficulties connected with the use of the mercury-treatment, as an intensifier after fixing, that are sometimes so annoying as to cause some photographers to abandon it entirely. When the sublimate solution is employed only till it blackens the negative, it will often act unequally. If the negative be left in until it whitens, with a view to subsequently treating it with iodine or with sulphide of potassium, it will sometimes happen that the picture becomes veiled. That which before immersing in the mercury was clear glass, may come out with a thin whitish deposit. If now the iodine or the sulphide be applied, this whitish deposit becomes black, and the negative suffers greatly.

To avoid these troubles, I proposed the following mode of action: Leave the plate in the sublimate solution until it is completely and evenly white. Wash it well off, and pour over it a solution of cyanide of potassium of 1 grain (or not exceeding 2 grains) to the ounce. This will rapidly blacken the negative strongly, at the same time clearing it up. It must be poured very evenly over the film, or used as a bath, and must be washed off as soon as the effect is produced, for if allowed to continue, it will whiten the film again.

It is evident that this process is particularly suitable to copying from engravings. It may also be applied where the picture, by mismanagement, has become slightly veiled during development, and is especially useful, in cases where mercury has been applied, resulting in a deposit on the high lights, to know that the negative is not thereby spoiled, but can be saved by using cyanide as here described, instead of the ordinary treatment.

### Refraction without Dispersion, and some Reflections.

It is with little pleasure that I take part in a controversy, which from the beginning has been kept up by misinterpretation and misunderstanding. As long as the gentlemen confined themselves to criticizing my work and expressing their judgment, I thought it not my part to give, uncalled, my opinion; but as my name has been forcibly dragged upon the stage, I feel it a duty to myself as well as to my friends to break my silence. As time is valuable to me I will not trifle it away by thrashing over empty straw, for it seems to me there has been already enough of cheap scientific talk.

Reading the question put by Mr. Taylor to Mr. Dallmeyer, at the meeting of the London Photographic Society, on the 14th June, 1867, I hoped that, in the hands of a practical optician, such as Mr. Dallmeyer, the case would be ended, and that I should have the pleasure of learning a valuable opinion about my lens. The case was not ended, however, and what I learned, was this: Mr. Dallmeyer said, "Although it was a somewhat invidious task to pronounce upon the production of another optician, yet, since the question had been put to him, he would answer it. When Prof. Steinheil introduced his lens a short time ago, he did *not* claim that it was achromatic, but admitted the necessity that existed for making due allowance for the difference between its chemical and visual foci. When he, a profound mathematician and optician, admitted that there existed a difference between the visual and chemical foci of his lens, it was, he thought, too late in the day for Mr. Zentmayer to claim for his lens, which was essentially similar to Steinheil's, that it allowed these two foci to coincide. This, he thought, would answer those who alleged that such a combination could be achromatic."

And the judgment was pronounced. But who told Mr. Dallmeyer that I ever said the actinic and visual foci of my lens were coincident? Has he seen it in any of my circulars, advertisements, or anywhere else? Who else, as far as my knowledge goes, said so, unconditionally?

Did Mr. Coleman Sellers in his exhaustive letter to "Argus," say so? Has the able Prof. Morton ever said so? Has the ingenious M. Carey Lea said so?

If Mr. Dallmeyer will take the trouble to look over all that has been written, he certainly will not find that which he would like to find. But if he does not wish to go to that trouble, I will tell him what he *will* find: Each one says, the difference between the actinic and visual foci, in Zentmayer's lens, is *practically inappreciable*. He also will find that the above-named gentlemen hold the same opinion of all other combinations, more or less, *i. e.*, that none, even those composed of three achromatic combinations, have their actinic and visual foci in a perfect plane, but are only brought near enough to be called so *for practical purposes*.

All this I fully accept, and I am convinced Mr. Dallmeyer himself, with his practical experience, will approve of it too.

Would it not be best for us to be frank, and say, we cannot secure *perfect coincidence*; even if we had crown-glass with a dispersion as near as possible to that of air, and flint of twice that of bisulphide of carbon. There is no such thing as *complete correction of a lens*.

The idea reminds me of the man who was to produce perpetual motion. Asked by his friend, "Jack, how are you getting along with your machine?" "O," said he, "first-rate; it is all done, all put together. All it wants yet is a little hook, which always goes so;" and he illustrated it, by moving the joints of his forefinger.

I was surprised, instead of hearing a well-founded opinion, and an independent judgment about *my* lens, to learn the opinion of the profound mathematician and optician Steinheil about *his* lens. One who wants to believe, believes without a proof; but he must follow a queer logic, whose belief is based on a proof like that given by Mr. Dallmeyer. "Prof. Steinheil invented a lens, which has a chemical focus; Zentmayer invented a lens also; therefore his must have the same difference in foci." Such a deduction does not give one a high opinion of his mathematical faculties. It is true Prof. Steinheil says his lens has a

chemical focus of  $\frac{1}{32}$ , and in another place  $\frac{1}{48}$  of its focal length, but who says it has not? Does the Committee of the Photographic Society, at Berlin, in their report about Steinheil's lens, say it has none? Does the careful experimenter, M. Carey Lea, say it has none? Does anybody else say it has none? But suppose a hundred persons should say, "We have tried Steinheil's lens, but could not find a difference in foci." What then?

I still would say Prof. Steinheil is undoubtedly right in saying it has a chemical focus; but if hundreds of experiments do not show it, it must be reduced to a measure practically of no account. I must confess I have the very highest opinion of Prof. Steinheil, and also of his lens. I know but few combinations of lenses so original and harmoniously constructed. But where was the high regard of Mr. Dallmeyer for Prof. Steinheil, shortly after Steinheil's lens became known? Mr. Dallmeyer undertook to improve Steinheil's lens; the angle was enlarged, the time of exposure diminished by introducing a negative lens. Now, Mr. Dallmeyer, please go and ask that profound mathematician and optician, Steinheil, what you have done to his lens; probably you will just hear, what I will tell you, that you have not understood his combination, and destroyed the beautiful harmony and certainty of his lens, and if the lens, after the improvement, still was useful, it only shows that the good qualities of a symmetrical combination bear a good deal of butchery without being killed.

One, familiar with the principle, may have a new one ready for each number of the *British Journal*. Changing crown and flint, alteration of curves and position, employment of doublets and triplets, negatives and positives, &c., &c., &c.; but what good is it to publish with pomp every week a new lens, to be forgotten again the next week, even by the inventor?

I am satisfied Steinheil, at the end of his most useful life, will, with pride and pleasure, recollect his lens; for there is, as far as it goes, nothing accidental, nothing superfluous, as in many others, which are produced like the ornaments of the kalei-

doscope, after all, glass-splinters, pretty, but of no use to the architect, for they have no meaning.

Here I cannot forbear to introduce a little anecdote of two travellers in Switzerland. They ascended the Rigi.

One says, "There in the distance lies the city of Berne."

"Can't see it."

"That black spot there is Berne."

"Can't see a black spot."

"Well, just there, where you don't see that black spot; there is Berne."

Now, sir, let us see whether there is not somebody to make that black spot visible.

Knowing that Mr. Dallmeyer, a foreigner, who takes so prominent a position among English opticians, comes from a country where scientific education is so general and easily obtained, I presume that he does not owe his reputation to his business talent alone, and he would have obliged me had he given his direct opinion in the matter some weight; but as he preferred to give the words of a highly respected authority as an indirect proof, so I will follow his example, and cite an authority of about the same calibre as a direct proof that Mr. Dallmeyer was literally right in saying, "It was too late in the day for Mr. Zentmayer to claim that such a combination could be achromatic," as the first claim belongs to Sir David Brewster as early as 1813. (See Brewster's *Treatise on New Philosophical Instruments*, p. 384, experiment 63.) "When a prism of rock crystal with a refracting angle of  $25^{\circ} 28'$ , was corrected by a prism of rock crystal with an angle of about  $70^{\circ}$ , the first being inclined in order to increase the dispersion, the uncorrected green is towards the vertex of the prism with the least angle, the colorless pencil being considerably refracted by the largest prism.

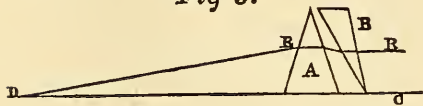
"When the two prisms of rock crystal have their angles  $25^{\circ} 28'$ , and  $41^{\circ} 20'$ , there is still a very considerable balance of refraction in favor of the larger prism after the dispersion is completely corrected."

Page 399: "The experiments recorded in pages 383 and 384 appear to hold out some prospect of producing a *chromatic refraction by two lenses of the same substance*. Dollond, and every subsequent optician, would



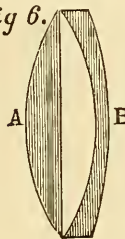
have pronounced this altogether impossible; but the result of the experiment 63 shows that it can be effected with prisms by means of an arrangement which we have represented in Fig. 5.

Fig 5.



"The prism B, which has a smaller refracting angle than the prism A, has the line which bisects that angle inclined to the incident ray RR, in consequence of which its dispersion is increased in a greater ratio than its refraction, so as to correct the dispersion of A without correcting its refraction. Hence, the ray RD will emerge colorless, and will meet the axis CD.

Fig 6.



"This arrangement of the prisms may be imitated with lenses, as in Fig. 6, where the convex lens A corresponds with the prism A as in Fig. 5, and the concave meniscus B with the prism B. We have made the lens A plano-convex, as

the combined object-glass will thus produce a more perfect correction of the spherical aberration. It is probable that the best form would be that in which B is a concave meniscus and A a convex meniscus, having its convex side turned towards the eyepiece. I have made some experiments with glasses of this kind, but though I have observed an evident diminution of the chromatic aberration, yet, owing probably to a want of proper lenses, I have not succeeded in removing it."

Thus far, we are informed by Sir D. Brewster. It is very probable if he had reduced the aperture, even of the lenses he experimented with, he would have found the diminution of chromatic aberration much more marked than the contraction of the aperture would seem to warrant. It is well known that for astronomical telescopes, the chromatic aberration cannot be corrected for a free aperture larger than  $\frac{1}{14}$  of the focal length, even with the best

adapted crown and flint, by the most skilful optician.

Now, if we change Fig. 6, as suggested by Brewster, so as to make A a convex meniscus, and B a concave meniscus, and compare it carefully with my lens, we will see where the black spot is.

Here we have a perfectly analogous case of achromatic refraction, produced by two lenses of the same material, unlike the Huygenian eyepiece, where the emerging rays are parallel, and, therefore, to a great extent under different conditions, and the beautiful mathematical calculations, that the difference between the extreme violet and the visual focus, is in all non-achromatic lenses or their combinations, equal to a  $\frac{1}{30}$  of the focal length show, that even a critic is not free from falling into error. So much the worse for his theory.

JOSEPH ZENTMAYER.

## A ROCKET IN TROUBLE.

BY PROFESSOR HENRY MORTON, PH.D.

THE editor of the *British Journal of Photography*, in his No. 372, alluding to a previous notice of his, concerning the Zentmayer lens, and the answers which it had provoked (see *Philadelphia Photographer*, page 177, vol. iv), compares the former to a rocket, and the latter to a powder magazine. There is, perhaps, more force than he realized in this comparison. We all remember the account rendered by Robert Stevenson, of the result which would follow from the encounter of a cow with a locomotive, as "very bad for the cow;" and we here seem to see a result equally *bad for the rocket*, which would appear to be so completely pulverized, that its constructor does not even attempt to pick up the pieces, but, leaving it wholly to its fate, attempts the production of some other similar squibs. The present notice in fact, is not even in appearance a defence of the original criticism, or an answer to its overwhelming confutations, but simply a little "talking against time," and "having the last word." In addition to the stunning effect of the above-mentioned explosion, it also appears that our editorial friend labors

under another difficulty. He says: "Few words will suffice to deal with the matter at present." And a little further on, after introducing the name of "Argus," says, "We shall, pending his return from a run in the country, adopt the desired," &c.

We do not wish to produce a garbled extract, and prove anything from it, but merely to call attention to the collocation of these two ideas. The brevity and temporary character of the present writing promising something in the future, and the absence of "Argus" among rural scenes.

If "Argus" is *not* the gentleman who *does* the science for the *British Journal*, and the editor is *not* in trouble for his aid, we ask both of their pardons.

In the meantime also, as we have not yet started for our "run" or rather yachting on the Hudson, and are reserving our great guns for a worthier occasion, we will try if we cannot make a little good practice upon these skirmishers of our opponent.

The setting up of a man of straw to laugh at or knock down, is a good game for children, but a very unwise make-shift in an argument. "Argus" *said* he could quote most weighty authority in support of his views, and then *did* quote, *never a word*. We ridiculed such childish talk as it deserved, but when it is implied that, in so doing, we ask that every point shall be decided by "authority," we are simply and deliberately misrepresented. Any ridicule that our opponent can throw on such an idea, *i. e.*, that of deciding questions of fact and experiment by authority, we cordially agree to, but he will remember that the idea is his, not ours.

Passing over this, however, let us see what authority is given after all:

1st, Lardner, who says that the eyepiece which every one calls achromatic, is not so. Now, in the first place, this authority does not impair our argument, which was with regard to the *use of the word achromatic* by standard writers. What Mr. Carey Lea said, he is able himself to substantiate; *we approve* of having everything done by the "*ablest hands*." But, besides, this quotation is worthy of note, or rather many notes (of interrogation): Where does it come from? Who is Lardner? Of what weight his au-

thority? Are authorities generally quoted without reference? We suppose, of course, that there really is such a passage in some of the popular lectures of Dr. Dionysius Lardner, an eminent popular lecturer on *every department of science*. An admirable and wonderful man, but precisely the last to do credit to your reading, when you select him as your one specimen of classical authority on a point of practical detail like the present.

We really feel sad at the dearth of information which this reveals, and, out of compassion, will supply you with something better. Most of the able writers on these subjects content themselves with discussing what has been done, without attempting to discriminate the possibilities and impossibilities of the future; but here, at least, is one exception: Sir David Brewster, in his *Optics*, page 76, says: "Hence, it is impossible by means of two lenses of the same glass, to form an image which shall be free from color." Here, then, in the way of authority, we have something that *is* something. But do not inaugurate a torchlight procession in honor of victory, quite yet. From the top of page 76, as above, look to the foot of the opposite page, 77, and you will read: "In the course of an examination of the secondary spectra produced by different combinations, I was led to the conclusion that there may be *refraction without color by means of two prisms*, and *that two lenses may converge white light to one focus, even though the prisms and lenses are made of the same kind of glass*."

Was Sir David an idiot when he wrote his *Optics*, asserting on one page what he denied on another? Or was his first expression like all those of a like nature which may be met with, only a loose general statement, overrunning the exact bounds of fact to enforce a prominent idea? Clearly the latter.

If "Argus," then, should be so foolish as to hunt up a list of such quotations, his labor will be doubly lost, for he is already answered. He made himself *look* very foolish by *threatening* us with quotations; and neither he nor you can mend *that* matter now.

But you have another authority, Mr.

Sutton, who also gives his evidence without name or address (*i. e.*, reference to page, &c.). Perhaps he was kind enough to *produce* this "authority" for your special convenience. Or perhaps it comes from the Dictionary. In either case we object to the "security."

The statement quoted, we will readily admit. It is one of those general oracles which are always safe to the utterer. Who doubts that "the conditions of achromatism are different for object-glasses and eyepieces," in some points? But we object to the authority as authority, on general grounds. If specially manufactured, it must be devoid of weight, and if from the "Dictionary of Photography,"\* it is ruined by bad company.

Thus, when we read in that work such statements as we shall presently quote, we believe nothing else we find under the same title-page, until it is confirmed by some reliable authority.

Thus, on page 73, we are instructed to arrange the object-glass of a lantern beyond the conjugate focus of the condenser; are shown in the diagram its worst position, as if that were right; and are told that a condenser would be useless but for its spherical aberration.

On the next page, 74, we read: "A condenser is never achromatized. A very little consideration will show the absurdity of doing such a thing. It matters not how heterogeneous the light may be when it falls on the achromatic copying lens, because it is the business of *that* lens to destroy the chromatic aberration of the pencils." The lenses here mentioned ought, we think, to be called not *corrected* but *correctors*. If illuminated with red light at the centre, and blue on the edge, they would make, no doubt, a white field, or if taking a man with a red vest and blue coat would make him look white on the ground-glass.

The passages above mentioned, are the first we turned to on opening the book, and are by no means exceptional. We are im-

pressed, indeed, most forcibly with the idea that some *little* ignorance of fact, and *some* carelessness of statement, has found its way into the "Photo. Dictionary," and impaired its value as an authority.

But you have still one authority left, as you seem to consider it, in the remarks of Mr. Dallmeyer at the Photo. Society. His evidence, as you say, is of no uncertain kind. Alas, for his own credit as a man of sound judgment and high-minded intentions, that it is so. But we leave him and his testimony to Mr. Zentmayer, who is quite able to settle both. His paper, which appears with this, quite disposes of *that* matter. Looking back upon your "authoritative method," and your "*authorities*," we cannot resist quoting the nursery song:

"And this was the end of one, two, three,  
The rat, and the mouse, and the little frogge."

Our friend acknowledges that he cannot worthily deal with our statement that American opticians are more original in invention than those of England, and we quite agree with him. If he does not know what has been done by Toles and Alvan Clark and Harrison, not to mention Zentmayer, we may perhaps one day undertake to teach him.

The stop used in the Steinheil lens without adjustment, *was* very small, and the picture *would* have been better if the adjustment had been made; but who ever denied either? Certainly not we. Pictures taken with a stop,  $\frac{1}{15}$ th of the focal length, by Zentmayer's lens, are now on their way, and will, we hope, open the eyes of our critic, if anything can do so.

When these pictures are seen, all with eyes will be convinced that Zentmayer has solved the problem deemed by *some* scientific writers to be "impossible." But it is too late for them now to hope to prove that all authorities are in the same boat with themselves.

A few words more as to our past and present platform, because we absolutely decline to be set in a false position, even if you go to the extent of placing quotation-marks on a word which we never used, and whose signification we have in no way countenanced.

\* Dictionary of Photography, published recently in England. Thomas Sutton and George Dawson, editors. A very unreliable publication.—ED.



We first announced a new fact on our own authority, as an eye-witness. This you tried to discredit by a general appeal to authorities who, as you claimed, denied the possibility of such a fact. We then appealed to your own authorities, not to prove our statement, which, without lack of modesty, we really think can only be called in question by those who know very little of us; but, to show that your statement was in error, and that your own authorities ("European savans") did *not* deny the possibility of what we stated.

We pulled your stool from under you, but did not therefore take our stand or seat on it ourselves.

Negative evidence, as to sensible facts even, is admitted to have little value; as to future possibilities it has much less. We might have disposed of your quotations on this ground alone. What we have said besides is merely for another "*count*," as the lawyers call it.

We notice, on reperusal, that we have overlooked Mr. Shadbolt. We ask his pardon, but must object to his evidence until we know its location and context.

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### OUR PHOTO-LITHOGRAPH.

In addition to our usual picture, we present our readers, this month, with a beautiful specimen of photo-lithography by the *Osborne* process, published in our June issue. If they will carefully examine this, they will see how truthful it must be, what an immense future there is for photography in this direction, and what a great helper our art is destined to be in the world. It is the iron—the backbone of the whole art system.

The following letter accompanied the prints from Mr. Osborne, and will be found interesting:

"AMERICAN PHOTO-LITHOGRAPHIC COMPANY'S  
WORKS, BROOKLYN, N. Y.,

"June 14, 1867.

"DEAR SIR: In accordance with your wish, I forward you a specimen of photo-lithographic work for your Journal, and trust it will prove interesting to your readers. In reference to it, I may be permitted

to say a few words, to answer, in anticipation, the questions which many would be likely to ask.

"Photo-lithographic reproduction has three great fields of action, viz.: The copying of drawings, made for that purpose by mathematical and mechanical draughtsmen, such as maps, architectural plans, and drawings of machinery; the copying of originals which have already been printed in some way, such as line engravings, woodcuts, and typographical matter, and, lastly, the reproduction of original drawings with the pen, by men who deserve to be called artists in the best sense of the word. The last is the highest walk to which my process can aspire. By its application to such work, we give to the world the painter's conceptions in his own language, without translating it into ours, as the engraver may be said to do. We reproduce every touch in the original drawing, and preserve the individuality of the artist, and the feeling which moved and actuated him at its conception, and which it has been his endeavor to infuse into his finished work. No copyist by hand, whether he work on steel, or wood, or stone, can copy the picture before him, line for line; he must render it in his own style, and the engraving which results must be a compound work. Not so when the camera, in good hands, is made to do the copying, and the press to supply the proofs. By the aid of photo-lithography, the artist sees his own work published as it left his hand; he feels that he stands before the public, alone responsible for it, and that its merits and demerits *may* be fairly judged.

"The specimen I have printed here at the Company's works, for the *Philadelphia Photographer*, belongs to this highest class of work. It is a reduction of a beautiful little pen-drawing, by the well-known landscape painter of Berlin, Mr. A. Berg, the same who drew the large and splendid illustrations to accompany the account of the Prussian expedition to Japan, China, and Siam, copies of some of which, by my process, I had the pleasure of showing at a meeting of your Photographic Society in October, 1864. The size of the original is 7 × 5 inches nearly, so that the reduction

has been slight, and was only necessary to accommodate the plate to the size of your pages.

"I am indebted to Mr. Berg, quite recently, for this picture, and am happy in being able to place it at your disposal for the *Philadelphia Photographer*.

"Yours, truly,

"J. W. OSBORNE.

"To EDWARD L. WILSON,

"Editor *Philadelphia Photographer*."

## PHOTOGRAPHY IN EAST FLORIDA. II.

BY REV. H. J. MORTON, D.D.

BEFORE leaving the St. John's River, and turning our steps coastward, it may be well to say a word concerning the climate of this region, and recall some of the features of the scenery not specially noticed in our previous communication. To a photographer, much of whose work is in the open air, good weather is of great importance. If he happens to be an invalid, it is a pressing necessity. Now, on the St. John's he finds, during the winter, that the clear pleasant days are the prevalent ones, the cold and rainy days the exceptional ones. In looking over the diary kept by a party who went up the river in two open boats, and camped out on its shores during February and March, we find but one really bad day recorded. The thermometer fell to 40° on that occasion, and there was a rain-storm attending this great decrease of temperature. Generally, however, the thermometer ranged above 74°. Our own experience during the month of February was much the same, with the exception that we had no cold days. The midday heat was, at times, uncomfortably great, but the nights were always cool.

From conversation with those who had passed the whole winter on the river, from invalids seeking health, and sportsmen seeking game, we gathered the impression that the climate was a remarkably fine one, far superior to that of the south of France or Italy, as we remembered them, and beyond all expression, preferable to our own winter weather in New York and Pennsylvania.

Indeed the contrasts between these two climates of this northern continent was singularly manifested by our weekly correspondence. The mail, eagerly looked for, would be duly distributed, and the happy possessors of recent communications, would retire to some shady nook, and sitting under the orange trees heavy with white and fragrant blossoms, within sound of the mocking-bird's song, and in sight of the wide circling sweep of the vultures, wheeling high up in the clear, blue, cloudless sky until they became but as black specks floating in the immensity of space, would break the seals and read: "Yesterday we had six inches of snow, and the week before, three inches of snow;" or, "We have had nothing but sleet and snow, and biting winds for weeks past." To read these things and the like, and look around on all the glories of green woods and glowing sunshine and fragrant flowers, was to realize fully that the climate of Florida, whatever might be its imperfections, was inexpressibly preferable to that of the North for invalids and those desiring to be much in the open air. There are, unquestionably, times during the winter days, when cold winds come down from the North, and make fires comfortable. But these days are "few and far between," and the cold does not reach the freezing-point by many degrees. Then the pleasure of a pine-wood fire is enough to repay one for a short spell of sharp weather. No one who has not seen the blaze of the rich Florida pine, full of "fat" sap, can fancy the brilliancy and beauty of the illumination which it produces, and the abundance of the heat which is given out. Candles may be dispensed with in a room when this wood is burning on the hearth, and in a few moments the heat is diffused all over the apartment. A little care in preparing one's quarters for occasional cold days, would render a winter's residence in Florida perfectly comfortable for an invalid, and delightful for one who sought the region simply for purposes of recreation or artistic occupation.

We mentioned, in passing, that there was a sulphur spring at Green Cove. There are several springs of this sort higher up the river. Blue Spring, near Lake Monroe,

and Silver and Salt Springs near Lake George, are examples. The first named spring (Blue), is a most extraordinary sheet of water. Fancy a deep basin about one hundred feet in diameter, framed round with woods, and so clear that the fish which abound in it, can be seen swimming many fathoms deep—its waters welling up in the centre with a force so great that it is impossible to keep over it the boat which has entered into the open space by means of the creek, out of which the spring empties itself into the river. You look down and down, seemingly into the very bowels of the earth, out of which the strange forms of fish are constantly gliding, and where trunks of trees are lying, coated with the yellow deposit of the mineral water. The fish, catfish, mullets, and gar, often of enormous size, come and go like ghosts in this strange abyss, and, as you follow the outpouring water of this spring along its channel until it reaches the river, you find that it refuses to mingle its crystal drops with the muddy current of the St. John's, but keeps up a steady non-intercourse act, so that, from the stern of your boat, you will look down into clear depths of many fathoms, while, from the bow, the eye cannot penetrate an inch below the surface. At sea, the same phenomena, though owing mainly to different temperatures of masses of water, may at times be witnessed. Thus we have not only currents running through the ocean, and distinguishable from the surrounding sea, but actually islands of cold water with banks as well defined as those of rock and soil.

The lakes into which the St. John's opens and spreads itself into, are beautiful sheets of water. As far as we can gather from the maps at hand, they (beginning north and going south), are: Dunn's Lake, Lake George, Dexter's Lake, Lake Monroe, Lake Jessup, Lake Harney, Lake Poinsett, Lake Winder, and Lake Washington, which last finds its source in a cypress swamp.

Lake Jessup is noted for an island called Bird's Island, and the reason for so naming it is obvious. A perfect cloud or coronet of birds circle over it, and a perfect belt or girdle of birds circle around it. Its woods are full of noisy paroquets and water turkeys, and other woodland tribes, while the gently

sloping shores are bright with snow-white cranes, gray with flocks of "blue" cranes and snipe, and an endless variety of waders; while here and there, where the pink crane is feeding, a crimson spot stands out in strong relief and vivid prominence, adding great richness to the landscape; while alligators in numbers, mingle their ugly black bodies with these beautiful shapes and brilliant tints, and make the grace of the goodly birds more manifest by means of contrasts.

Dunn's Lake, or Little Lake George, as we believe it is called, has also an island in it which is noted for a sad tragedy of which it was the scene. A hunter, by the name of Allen, was on it with a companion, who had unfortunately supplied himself with a cap made of skins. The two men were seeking game separately on the island, when Allen saw, as he thought, the head of a deer among the bushes. He raised his rifle and fired, and, going to the spot where the game fell, found to his horror, that he had shot his companion through the head! He lifted the dead body and carried it to the boat (in which he and his friend had come to the island), and rowed down all the way to Pilatka. It was near evening when the accident occurred, and through the whole night he plied his oars, and bore along in his boat the corpse of his comrade. One can see him on this awful journey—the silent river and dark woods around him, and the still form of his dead companion lying there in the stern sheets! On his arrival at Pilatka, he gave himself up at once to the authorities of the place, and was tried and acquitted, and set free. His after fortunes are not the subject of any reliable record.

It is sixty years since Bartram (celebrated for his garden, near Philadelphia), visited these same lakes and this same noble river, and the history of the voyage made by him alone in an open boat or canoe, is most interesting and curious, by reason of the contrast which those same places now present, to the vivid and obviously honest descriptions of them in his quaint narration.

Mr. Bartram's progress was, at times, absolutely disputed by countless alligators! In the upper branches of the river, these monsters flocked around his frail boat and roared, and snapped their huge jaws with the



noise of pistol shots, and assailed the skiff in which the fearless navigator floated, and were only driven off by repeated and violent blows and occasional gunshots. The fish, too, came down the river in perfect masses of leaping, flashing life, and were killed and fed on by these gigantic foes by thousands. Now, the oft ascending and descending steamers, each with its one or two or twenty gunners, have taught the alligators to dread and shun the sight of man, and to escape as swiftly as possible from his presence, while the fish, though still abundant, are no longer seen in such prodigious masses.

We spoke, a moment ago, of "water turkeys" as among the birds frequenting the upper reaches and lakes of the St. John's. Why called turkeys, we can hardly say, but the water proclivities of the bird are very singular. You will see one sitting on a branch which overhangs the lake or river; as you approach, he begins to move his head, and, with sudden jerks, to stretch out his neck. Further and further the bill and bright eyes are advanced, then, in an instant, the bird drops down plumb into the water like a falling stone, and you see him no more.

As the varieties of animal life in these regions are great, so also are its vegetable products; and they are as strange and beautiful as they are diversified. The whole aspect of the shores is tropical—palms, palmettos, magnolias, and orange trees abound; and then the long drooping moss which drapes multitudes of the forest trees, is a singular and striking feature in the landscape, and can be beautifully rendered by photography. We secured some pictures in Savannah, published by J. Wilson, which gave a very fair idea of the appearance of a wood thus arrayed. But much more perfect pictures might be produced. This moss is the *Tillandsia* of the botanist, and derives its name from a circumstance thus detailed by Linnaeus:

"*Tillandsia* cannot bear water, and therefore I have given this name to the genus, from a professor at Abo, who, in his youth, having had an unpropitious voyage from Stockholm to that place, no sooner set his foot on the shore than he vowed never again to venture himself on the sea. He changed

his original name to Tilland, which means *on or by land*; and when he had subsequently occasion to return to Sweden, he preferred a circuitous journey of two hundred Swedish miles through Lapland, to avoid going eight miles by sea."

Of this moss, I am informed by a professional friend, there are many varieties. Some bear a very beautiful flower. The plant is perennial, and is found as far up north as Virginia. Its firm, small roots penetrate the fissures of the bark of the live oak and other trees, and then festoon the forests with long waving drapery, sad and solemn in aspect, and suggestive of solitude and savage wildness. This moss furnishes a scanty supply of food to browsing cattle, and the stems, when beaten until the bark peels off, are used as a substitute for hair in mattresses, &c. The plant can be cultivated at the North in green-houses and parlors, and then only requires a piece of wood or basket of rotten chips for its support and supply of needed nutriment. The cemetery at Savannah (Buona Ventura), is famous, and deservedly so, for its magnificent display of live oaks, thus strangely and solemnly draped. How the place should ever have been selected as the site of a country seat (as we are told it was originally), seems hard to understand. Even as a burial-place, it appears to be losing favor, being less and less used for such a purpose, and resorted to mainly by strangers, who visit it as a natural curiosity. Along the St. John's, particularly in the vicinity of the upper lakes, this moss attains to enormous lengths of waving and pendant beauty, hanging in long lines from the limbs of the live oak, or extending in graceful curves from one branch to another, or from tree to tree. When the air is still, it hangs, of course, motionless, and is full of mournful suggestions, but, when the winds are awake and abroad in the forest, it is tossed to and fro in wild disorder, and fills the mind with thoughts of torn battle-flags and banners, or of wild and weird living things, not belonging to this world, but still of some strange fatality, flitting about amid the shadows of the forest.

Do not be in a hurry. Keep cool, and work carefully.

### Gage's Process for Making Negatives and Positives in the Camera.

BELOW we give further details of Mr. F. B. Gage's process, briefly described and commented upon in our last. In his specifications, he says:

"I proceed to take a photographic impression in the manner usually employed. Then I place some plain, dark, dead surface in front of the camera, the sensitive surface still remaining in the camera. I then remove the covering from the lens-tube and expose the sensitive surface, on which the impression has been formed, to the light reflected from the dark surface, while the dark surface is kept in gentle motion, so as to prevent the sensitive surface from taking an impression of any wrinkles or other variations on the surface from which the light is reflected. The time of this exposure must be varied according to the amount of light reflected, and the effect it is desirable to produce. The usual amount of time occupied in this exposure will be from one-fourth to double the time employed in taking the invisible impression. But in some cases it can be extended much beyond this time. For a dark, dead surface I usually use a piece of thick, black woollen cloth, about eighteen inches square, attached by one edge to a stick about two feet long, which I hold horizontally, and gently move in front of the camera with the left hand, while I uncover the lens-tube with the right hand.

"It is not absolutely essential that this dark surface be kept in motion, but it is safer. This exposure of the sensitive surface to light reflected from a dark dead surface apparently leaves the lightest portions of the impression but little changed, while it effects a much greater change in the darkest portions of the same, and thus harmonizes and properly blends the two, giving to the whole an atmospheric effect never before realized in photographic impressions. It also renders it less difficult to obtain the necessary intensity in negatives.

"It will be understood that my invention applies equally well and is operated in the same manner in taking positives or negatives in the camera. I believe that the best results are produced when the dead

surface is as strongly lighted as possible without sunlight, using a diaphragm to reduce the aperture of the lens to prevent the development being so rapid as to become unmanageable. I have produced excellent results with a silver bath of twenty grains of nitrate of silver to the ounce of water, being about one-half the usual strength in use, the sensitizing of the collodion being proportionally reduced. I believe it will effect a great saving of expense for this reason.

"I believe my invention also removes the most important obstacle to the production of dry-plate impressions by harmonizing the lights and shades, which have heretofore usually been hard and inartistic. Exposing the sensitive surface in the manner described, before the impression has been formed, has less tendency to blend the lights and shades than when done afterwards, but I believe it gives a different and peculiar tone to the impression, which, in some cases, is very desirable, especially in negatives. When the object to be impressed is strongly lighted, accompanied with deep, heavy shadows, it is found advisable to illuminate, in the manner described, the sensitive surface, both before and after the impression is formed. This is effected by moving the black cloth before the camera a short time, before as well as after, and operating otherwise in the same manner as before described.

"Light dead surfaces may be used to produce a similar result, but their use is attended with greater hazard; and I believe the result obtained from dark surfaces is always to be preferred. I believe, also, that some glossy surfaces even may be used for this purpose, but require greater care to insure desirable effects. I believe that some good effect may be produced by admitting transmitted light upon the sensitive surface, or again, light reflected from yellow, and even red, and other colored surfaces, either before or after, or both before and after the photographic impression has been formed, but I believe that the reflection from a dark dead surface is much to be preferred, and have described a method of operating which I have found perfectly convenient and practical for use. The dead surface

may be placed in the exact focus of the lens if the surface be kept in motion, so as to produce no distinct impression of its porous structure and inequalities, but it is neither as safe nor convenient as when the surface is out of focus.

"Having now fully described my invention, what I claim as new, and desire to secure by Letters-Patent, is as follows :

"I claim in photography the employment of diffused light, under the conditions herein specified, so as to render visible slight gradations of shade, both in the light and dark parts of the pictures, and to unite softness with strength, as herein explained and set forth."

### VARNISHES.

BY M. CAREY LEA.

I was much interested in some remarks by Mr. Wenderoth on this subject, in connection with a paper previously published by me. From what he says, I think it is highly probable that a little essential oil (oil of lavender is usually employed), may benefit the varnish, and his experience has been so large that his opinion is naturally entitled to much weight. But, as I do not believe that a lac varnish is capable of cracking for want of an essential oil, I have inquired of Mr. Wenderoth whether it was a lac varnish from which his negatives suffered so disastrously, and find that it *was not*. Lac, and even some other varnishes without oils, have been largely employed without bad results. Van Monckhoven, for example, does not mention an essential oil in any one of the various varnish formulæ which he gives. Mr. Wenderoth tells me that the varnish which cracked on his negatives was a sandarac varnish. Sandarac, though a very white, is also a very brittle gum, and has none of the toughness of lac.

In view of the above, I would modify my formula by introducing oil of lavender in the proportion of one ounce to ten or twelve of alcohol.

If you do not wish to fix your negatives in the field, coat them with glycerine after washing.

### PHOTOGRAPHIC SUMMARY.

BY M. CAREY LEA.

GERMANY.

*Development.*—Prumm asserts that cane-sugar added to the developer is an aid in working with bad light, but an injury in good. Remelé dissents from this, and further remarks that *formic acid* in the developer, which has been so much recommended, tended to give them soft pictures.—

*Mittheil.*

*Residues.*—In reducing hyposulphite residues, Braun advises to add metallic iron, whereby the silver is got free from sulphur. Pfeiffer advises the addition of equal parts potash and soda as a flux. His method of reduction is to precipitate the hyposulphite solutions with sulphide of ammonium (liver of sulphur answers equally well, *Lea*), dry, mix up with soda and nitre, and throw by spoonfuls into a red-hot crucible. Jung-hans mixes one part chloride silver, one potash, one soda, intimately, and rubs the sides of the crucible with chalk. Lust precipitates hyposulphite solutions with hydrochloric acid, which throws down chloride of silver mixed with sulphur, which mixture is melted with flux.—*Id.*

*Landscapes, &c.*—Remelé remarks that he has frequently produced, artificially, "atmospheric effects," and hazy distances by after exposure. The parts to be affected were left uncovered, brought to the light of a lamp, till a slight impression was made, and redeveloped. Vogel exhibited a print in which beautiful rays of light through foliage were obtained, by reversing the ordinary position of the camera, and pointing towards the light, that is, with the sun in front, instead of behind, as usual. Suck exhibited a portrait with a new large objective, by Busch, the figure being 20 inches long, and everywhere sufficiently sharp. The whole picture was 23½ inches by 29½. This objective was in manufacture, uninterruptedly, from the beginning of September till February.

This giant objective required for the two crowns two flint glasses, 45 lbs. of glass; these, when finished, still weighed 30 lbs., the whole arrangement of lens and tube, 154 lbs. Diameter of front lens, 10 inches,



back lens, 10 $\frac{1}{4}$ . "Back focus," 33 $\frac{3}{4}$  inches, of the front lens alone, as a landscape lens, 68 inches.

The portrait combination covers a plate of 24×30 inches. The landscape lens 45 inches square, or a rectangle of 36×48.

The objective gives a small picture of sharpness equal to what a small lens would give.

A full exposure, on a moderately cloudy day, 2 minutes; distance of sitter, 14 feet. —*Id.*

*Portrait Lens.*—So far, the lens exclusively used for portraiture (except the occasional employment of lenses designed for other uses), has been the Petzval combination known as the "portrait lens." Steinheil announces a new form, probably that spoken of by V. Monckhoven in his *Photographic Optics*, when he states that Steinheil's new portrait lens, about to be introduced, will altogether supersede the present form.

#### FRANCE.

*Dry Plates.*—Geoffray states that England's process is not new in its essential features, and gives the following as the best, simplest, and surest of all dry processes:

Collodion, as usual. Bath, not over 30 grains. Lay the plate, when removed from the bath, in a pan of common water whilst the next plate is sensitizing. Take out the plate from the pan and let a stream of water flow over it to make sure that the surface is clean.

Beat some eggs to a froth. After standing, draw off the albumen, dilute it with an equal bulk of water, and add one or two drops of ammonia, which makes the albumen keep in good order and fluid until used up.

Pour the albumen, precisely like collodion, over the washed film; wash it off again with a stream of water, and set away to dry, resting on a corner. Geoffray uses for drying a box, which he blacks the inside of, and sets in a plate of chloride of calcium to help the drying; when the chloride becomes wet, dries it again in the stove.

After the exposure, moisten the plate with water, and apply an ordinary developer. It is unimportant if the image does

not appear with the first application of the developer, which last is poured back into the vessel and a few drops of pure solution of nitrate of silver (not bath solutions of any sort) are added and returned to the plate, which speedily acquires the necessary intensity. Geoffray claims excellent results from this process, to which alkaline development may be applied, and instantaneous pictures taken by.—*Moniteur de Phot.*

#### ITALY.

*Toning Baths.*—De Constant states that he had independently arrived at the result that a sulphocyanide and gold toning bath would give magnificent results, and prefers Liesegang's formula, which was published not long since in this summary, and is a modification of a formula given by me, and to which Liesegang adds sal ammoniac, as tending to keep the white pure.

De Constant confirms the statement of A. Hughes that, by taking out the print at the right moment, two different tones are obtained in different parts of the print, contributing greatly to the effect; as, for example, in a landscape, a warm brown tint in the foreground, passing into a cool gray in the distance.—*Camera Oscura.*

### GERMAN CORRESPONDENCE.

DEAR SIR: I will continue to describe the latest and most interesting news of the Exposition at Paris. You undoubtedly have heard, through English journals, of the portraits taken by Adam Salomon, and probably would like to know my opinion about them. I wish I could send you some specimens herewith. The artist promised me some, but as his time is so much occupied by his English friends, I suppose he has not been able to attend to them yet. Our friend, Mr. Simpson, has described them in your columns, so I need hardly repeat. They are all framed, and are extremely dark at their edges; from there to the middle they gradually get lighter, and where the picture becomes most lighted the head of the figure is placed, and therefore appears wonderfully in relief. The hands are less lighted than the head, and all the rest is

kept in half shade. The dresses of his figures are mostly dark, and velvet draperies frequently used. The tint of the pictures is a warm violet. Even in the darkest parts, details and middle tints are observable. I was, of course, curious to learn how the artist accomplished such results, and turned my steps towards his residence near by the Bois de Boulogne. I found him in an elegant garden, in which there are two studios (ateliers), one for sculpture and the other for photographing, the latter in the second story. As a photographer, he, of course, takes his copies only from living originals; as a sculptor, he seems to be working from the dead only, for I only saw him at work on the statues of departed men for the ornamentation of their vaults. As a sculptor, he is an artist, and this is the secret of his success in photography. He told me that he busied himself but three hours daily with photography, a work that ought to pay well, considering that he charges £4 sterling for the above size pictures. At first I believed the man reached his points by the retouching of the negatives and copying-tricks; but this was not the case. He showed me almost the whole of the negatives of the exhibited pictures, and I could discover upon them only the patching-up of small holes and the like. But then there was the gradual waning of the light from the middle distinctly observable. To account for such effects, there remained but the mode of illumination, and it was with curiosity that I entered his studio. This is of a very simple construction, merely a glass house, 12 feet high, open to the north and closed in all other directions, with very plain shades. On one side there stood a yellow paper background, over which, roof-like, some black muslin was stretched, and which seemed to be intended to throw shadow upon the sitter or the background. To the right of the window there was also placed a vertical muslin shade. The lens was placed under a screen, that is, a plain roof made of paste-board. The negatives were all pretty dense. His washing apparatus seemed odd; he fastens the pictures between pins on one side, so that they are hanging down perpendicular, and in this position he puts them into a

box in which water is constantly flowing to and fro. At the time I was visiting him he was engaged in constructing a new atelier, which, strange to behold, is to have only a skylight directed toward the south.

Side by side with Salomon's stands the work of my countryman, Reutlinger. In richness and brilliancy of tone, and soft middle-tints, his pictures are not behind those of Salomon, but they are wanting the abovenamed waning of the light from the middle towards the edge; and again, Reutlinger often introduces white drapery, which Salomon never does.

For the celebrities of the day and the theatrical world, Reutlinger is the first photographer in Paris; his lady pictures have not their equal for graceful posing. His atelier is plain; a glass-house, with northern exposure, and skylight covered with ground glass. It is so narrow that he can only place his sitters on one side. All his pictures are illuminated from the right. But out of this small place what beautiful work he sends! His parlor is frequently crowded; he is everywhere, and has a friendly word for every one. He makes use of six different backgrounds, snugly rolled and at hand instantly, when needed. He works with so great rapidity that it is difficult to realize that your picture has been taken. His negatives were very sparingly retouched, and but a few of them I observed had lead-pencil marks in the most transparent parts. Reflecting screens Reutlinger never makes use of, because they give false light. With the changing light he employs collodion more or less sensitive.

Beside the above, I have visited many more ateliers, and I must confess I have rarely met with such curious constructions as are in Paris. They are mostly made without reference to any principle. Bingham's atelier is open from all sides; Nado's and Petet's are lighted from the south. If, in spite of all this, they succeeded in making good work, it is due to their great skill and practice.

Speaking of Paris, we must not omit the celebrated dark-room of the French department. This is not meant to make negatives in, but to view glass positives, the beautiful productions of Ferrier, Soulier, and Leon

Levy. They surpass all others in beauty of detail, magnificence of illumination, and translucency. The *Notrê Dame*, the *Valley of Chamounix*, and the *Reichenbach Falls* of *Soulier*, are master-pieces; and it is of great interest to compare these with paper prints from the same negative, which are greatly inferior in brilliancy on account of want of transparency in the lighter parts. *Leon Levy's* pictures are made in large quantities for the market, and of late he has contributed to the *Exposition* great numbers of stereoscopic pictures. Beautiful though these are, they are surpassed by *Bedford's* landscapes. He unites all artistic appliances, such as light and shade, position, grouping, illusive in a high degree, and the eye dwells with delight on his charming pictures. In landscape photography the English excel, but in portraiture are far behind the French and German.

The distribution of prizes taking place to-day, you will be astonished that I have not as yet mentioned the names of the few that have received gold medals. Perhaps you will guess that my enthusiasm for these worthies does not quite come up to that of the jurors. Now, their names are *Garnier*, *Tessié du Mothay*, and *Lafon de Camarsac*. The latter you know as the first one to make excellent photographs on enamel, of a faultless beauty, and he has so cleverly managed it that no one knows his secret as yet. I suspect, though, that his method is similar to *Joubert's*, on whose mode of operation I will report to you in future. In this connection, I cannot avoid mentioning the productions of *Deroche*, which are at least equal to the others, but he charges a very high price for them. *Garnier* has exhibited a series of etched metal plates. Two of them are remarkable. Conjointly with them are two silver prints from the same negatives, and indeed the metal prints do not appear to disadvantage. On the contrary, the other plates exhibited appear all the more wanting, and justify the supposition that those two plates are the only ones of a series turned out successfully. Then *Négre*, too, has exhibited steel prints in conjunction with silver ones. I should have been delighted with their beauty if I had not seen some of *Négre's* plates with one of my

friends who had ordered them, and which were anything but satisfactory, and required much retouching. *Garnier*, like *Lafon*, keeps his proceedings secret. *Tessié du Mothay* has been more outspoken. Of his prints, which are remarkable for their middle tints, he owns they are copied with a gelatinous bichromate, and afterwards washed. He thus obtains a relief which he transfers directly, but which is so fragile that his plates can stand but a very limited number of impressions, perhaps 70. True, another plate can readily be made, but it remains an open question whether they be exactly alike.

DR. H. VOGEL.

BERLIN, July 1, 1867.

### VOICES FROM THE CRAFT.

EDITOR PHILADELPHIA PHOTOGRAPHER.

Having had an opportunity recently to notice the benefit a young friend of mine derived from studying a collection of faulty negatives, I deem it not to be out of place here to draw the attention of all photographers, and especially of those who make it a business to teach the art, to the utility of preserving those negatives that show one or more characteristic defects distinctly. To do this will cause very little trouble, and I am convinced that to look over such a collection carefully would be more instructive to a beginner, than to admire ever so many well-executed photographs. It is not very likely that during the time a student is with his teacher, all, or even the greater part of our well-known failures should occur, and that consequently the knowledge gained, will be more or less imperfect. In most instances he will learn without much difficulty to clean, coat, dip a plate, and go through the usual manipulations, and will then imagine he is well enough posted to go "on his own hook;" but, alas! only too soon he will find out that there are more spots, streaks, and all sorts of curiously shaped markings on his plate, than he ever dreamed of, and will either give up the business in disgust, or will do what is worse, pass off his inferior work on his customers.

Some time ago it occurred to me to preserve some of my faulty negatives, and



I have succeeded in getting up a collection of about two dozen, every one of which show distinctly one or more different faults. At the same time I put down in my notebook the defects, and the methods by which I succeeded in getting rid of them.

If I was not afraid to be too tedious, I would be willing to give you a full copy of my memoranda; I shall pick out just a few plates only, for example's sake.

No. 1. Silvery appearance in the shadows, and between the glass and film.

Cause: Plate not cleaned well. This defect will show itself more in damp weather, and when a neutral silver bath, in connection with a very light-colored collodion, is used, and when the negative is under exposed.

Remedy: Be careful in cleaning. Warm the plates lightly, and use a darker colored collodion. See that the bath is slightly acid.

No. 4. Gray and foggy-looking negative with streaks in the direction in which the plate was dipped.

Cause: Alkalinity of the silver bath.

Remedy: Add nitric acid, a few drops, until, after trial, the cure is effected. The acid being so diluted it requires some time before it shows its full effect.

No. 6. Streaks in the direction the plate was dipped, the negative being good and clear otherwise.

Cause: The bath is not saturated with iodide of silver.

Remedy: Leave a collodionized plate in it over night.

No. 7. Part of the film is washed off on one corner, and in one place the iron got in between the plate and film, and has caused a spot (prussian blue) with a cyanide.

Cause: The collodion too fresh. The gun cotton was likely made with acid, at a low temperature. When a large proportion of the cadmium salts are used, this will happen very often.

Remedy: Set the collodion aside, or make a fresh sample with a large proportion of strong alcohol, and use less cadmium salts.

I think, Mr. Editor, this will suffice to show what I mean. Should any of our young friends be benefited by this idea, I shall be very glad of it. Before I conclude this letter, I would caution our friends

against the careless use of the bichromate of potash, as it has been proven to be poisonous when brought in contact with fresh cuts.

Yours, respectfully,

ROBERT BENECKE.

St. Louis, June 17th, 1867.

THE OTHER SIDE.—It is true, as your Memphis correspondent says: "That in many places the heavy expenses attending the cost of carrying on a well-regulated gallery, is more than the amount of business done, and the comparatively low prices of photographs justify;" but, "what are we going to do about it?" The rule is here, in this Western country, among the masses, to buy what they want, and get it as cheap as they can; and, as the card-pictures have become so popular, are so handy, and so well adapted to the wants of the people, it will be a matter of impossibility almost to supplant them by the new size and much higher price. With all due deference to others, my candid opinion is, that with the masses of the people, this larger size never will attain the wide-spread popularity that the card pictures have, and, for several reasons: they only fill the place of the latter, and will cost the consumer much more; they are too large to be convenient for carrying or mailing, too large for albums, and too small for framing, &c.; and the only place they are well adapted to fill, is for the illustration of the *Photographer*.

To attempt to force people against their wills to buy larger and much higher priced pictures, although prices are "ruinously low" now, will be to find our galleries deserted and many of us forced to "shut up shop," or fall back on the ferrotype, in its many varieties and cheapness. It is a fact, much to be deplored, that the disposition to "cut under in price" is too prevalent among photographers.

Only last week, the heretofore leading artist in this place, and the patentee of a "solar camera," announced, through the paper, "*That, in order to keep up with the times, hereafter he would make card pictures for \$2.50 per dozen!*" And, in order to keep up with him, the others, per force, had to come down also. And now "what are we

going to do about it?" I believe in, and have always tried to keep up the prices to a fair remunerative standard; this we should all do, and to make as good work as we can, and even then, people will only buy what they want, and, as they can do without pictures better than bread and meat, they are not going to purchase the *new size* nor any other size, at extravagantly high prices, not even if "times are dull." Now these are facts on the other side of the *picture*, yet facts notwithstanding; and so "Now what are we going to do about it?" and echo answers What? S. P. S.

PRINCETON, ILLINOIS.

CANONSBURG, WASHINGTON CO., PA.,  
June 15, 1867.

MESSRS. EDITORS: I avail myself of the present opportunity to present a query to some of the more learned photographers. But first let me state my case: I have been engaged in photography between four and five years, and am now very much afflicted with sore hands. Have tried a great number of remedies with but little benefit, and am now afraid of losing my finger nails. They have become so poisoned that even water seems to aggravate the disease. My fingers are pretty much denuded, swollen, and exude serum; think, there is no doubt but that the disease is produced by the chemicals employed in our art, as it shows itself nowhere except on the fingers and so much of the hand as comes in contact with the chemical fluids.

Query: Is this disease of common occurrence among photographers? If so, what is the remedy?

Respectfully yours, T. W. COWEY.

Mr. Cowey's case is rather a rare one, we are glad to say. His trouble is, no doubt, caused by keeping the fingers in cyanide solutions and gold toning baths. On inquiring of our valued contributor, Mr. Lea, if he knew of a remedy, he writes:

"The only remedy is to use glass rods, or whalebone forceps. Ointment of oxide of zinc will help to heal the sores—then *keep the fingers out of poisons*, as above, also out of corrosive sublimate."

Ointment of oxide of zinc is directed to be made, according to the United States Pharmacopeia, "by incorporating 80 grains of oxide of zinc with a troy ounce of lard. The lard may be substituted by any simple ointment, such as cold cream, or glycerine ointment."

EDITOR.

## PHOTOGRAPHY ON THE PLAINS.

ENGINEER'S CAMP, SMOKY HILL RIVER,  
NEAR SALINA, KANSAS.

MORE than half-way across the Continent, seems, until the point is reached, a long and weary journey, but such is not the case. After having passed over the various railroads which, for the present, have their terminus at the *town* of Salina, on the Union Pacific Railway, E. D., the passenger looks back with wonder at the rapidity and comfort of the trip. There is no necessity for stopping at night, as all the through trains are provided with excellent sleeping cars; also, first-class refreshment stations are liberally scattered along the line, not, as many imagine them to be, small, dirty, poorly kept places, where travellers are scarcely allowed time to swallow a few mouthfuls, but just the reverse, being really better than three-fourths of our Eastern saloons. With plenty of good food, well-regulated sleeping-cars, and rapid running trains, the centre of the Continent is found to be of easy access from our Eastern cities.

Many of your readers, Mr. Editor, are aware that a survey is about to be made of a new line for the Union Pacific Railway, E. D., whose eastern terminus is at Wyandotte, Kansas, with an important branch to Leavenworth, both places situated on the Missouri River. The main line is proposed to run southwest from Pond Creek to Santa Fe; from that point, west, the route will be entirely governed by the present survey.

The engineer and scientific corps will consist of about one hundred men, sufficient for three separate parties, under command of General W. W. Wright, chief engineer of the Union Pacific Railway, E. D.

A cavalry escort of some two hundred

men will be furnished by the United States Government, for protection against Indians.

A very important assistant has been added to this expedition, namely, photography, from which much is expected. The object of your correspondent's visit to the West on this occasion, was to see that everything necessary to the success of that department had arrived safely. Thanks to good packing, all the apparatus and chemicals were received in good order, not an article was broken—something remarkable, considering the amount of glass subjected to a journey of fifteen hundred miles.

The first question which suggests itself to every one in a new country, especially to the photographer, is good water? Kansas is undoubtedly a very valuable addition to our galaxy of stars, so far as soil and enterprise is concerned, but a large proportion of the water is bad, not pleasant to the taste, and decidedly bad photographically, being a solution of chlorides and sulphates of lime, magnesia, and soda, with a liberal allowance of mud and organic matter. One trial was sufficient to show that such water could not be used successfully in combination with chemicals. Many suggestions were made to purify it; among them, that a locomotive engine be made to answer the purpose of distillation, but, owing to the absence of a coil of pipe to condense the steam, it was found to be impracticable. Ice was next mentioned, but where to obtain a supply? The enterprising little town of Salina, however, came nobly to the rescue with an excellent article, clear as crystal, not giving even the slightest trace of chloride.

The great difficulty of pure water having been overcome, all the chemical solutions were easily made, and numbers of good negatives taken.

As I have spoken of the enterprise of Salina in furnishing ice, mention may be made of facts of more importance: last year the value of town lots in this place increased one-third in two weeks; the railroad being at that time fifty miles away, timber could not be procured fast enough to build the houses actually required.

All of the Government forts or military

posts are built on large Government reservations of 12,000 acres or more. As close as possible to these boundaries, towns are located, which, aided by the business of the post, increase rapidly: for example, the city of Leavenworth.

But the most astonishing enterprise is found near Forts Riley and Harker (late Ellsworth), on the line of the U. P. R.W., E. D. Junction City, three miles from Riley, not yet two years old, is one of the busiest places that can be found outside of the large cities; building lots, worth from two thousand to four thousand dollars. The houses are built of stone, principally, nicely cut into blocks, procured from a quarry near by. Almost everything can be procured here, as this is one of the places of shipment for the Santa Fe and Western trade.

Ellsworth City is located a few miles distant from Fort Harker, and eighty-two miles west of Junction City. Last November, to my certain knowledge, not a trace of it was in existence; now, about forty houses are built and finished, with greater demand for more. On the principal street running east and west, is a store containing a variety of articles, among them, a large display of patent medicines, which, for some little time, had enjoyed the advantage of being the farthest west of any of its rivals, but its days are numbered, for a better store now occupies the opposite side of the street a short distance farther towards the setting sun, with the bottles of a rival house triumphantly displayed in its windows. It seems to be a race between the towns and the railroad, which shall advance the most rapidly west; the latter is laid very quickly over the plains, but, although the towns depend very largely on it for lumber, still they keep ahead.

Reader, do not fancy that the scenery of this part of Kansas is particularly fine or interesting. A fair specimen might be taken from our camp, comprised in a few words, by a large rolling prairie entirely destitute of trees, except a few scattered along the Smoky Hill and Salina Rivers, which, uniting a few miles away, form the South Branch of the Kansas River; the picture is very tame and monotonous, but



far preferable to the plains proper, which may be called the great American desert, with the distinction that water is generally to be found, although, in one case, separated by a distance of eighty to one hundred miles.

Almost all the streams in Kansas are called rivers, but they are very shallow, and not over one hundred feet wide; during heavy rains they become truly formidable torrents by the floods of water, inundating miles of country.

The traveller over the plains in the spring, will no doubt be surprised at the entire absence of trees, but, let the trip be made in the fall of the year, and the question need not be asked: Why do not the trees grow? The long prairie grass is then ripe and dry like tinder, needing only a few sparks to set fire to miles of prairie, which, aided by the usual high winds, whirls along with the rush that is peculiar only to a fire on the plains.

By accident or design, this region, in the autumn, is seldom free from fires; in the latter case, occasioned by the Indians burning off the old rank grass, so that new may grow, on which to feed their horses.

Trees, therefore, cannot get a start sufficient to take care of themselves; experiments have been made by planting various kinds of rapid growth, but all have met the same fate; indeed, it is astonishing that anything will grow, after travelling over miles of scorched and burning ground, but the soil is good and the grass soon grows again.

Many beautiful flowers were seen, but not in the profusion that had been expected. Fine specimens of the Cactus family grow

almost anywhere on the plains; several brought to Philadelphia are now growing finely.

The buffalo grass (so called from being the natural food of the animal), is a short delicate variety of grass, but curious, from the fact that it is only found in the country constantly frequented by herds of buffaloes. As they are driven farther west, the grass becomes entirely extinct; even now it is difficult to find near Salina, which only two years ago was their feeding-ground.

In summer this country would be terribly hot were it not for the high winds which continually prevail. To give an example of what the photographer may expect, *both tent and camera were completely blown over* on the first day's work. A very complete arrangement for dry plates is included in the apparatus which may obviate some of the difficulties of wet photography on the plains.

Major Callhoun of the *Philadelphia Press*, accompanies the party, who will, it is to be hoped, keep us posted, photographically and otherwise, of the progress of the expedition. The photographer will be Dr. Bell.

JOHN C. BROWNE.

June 10, 1867.

NOTE.—Much confusion has naturally arisen at the East, regarding the difference between the Kansas and Omaha routes, both being called Union Pacific Railroads. For some unexplained reason, their signification is almost the same, the only difference being that the Omaha route is named the Union Pacific Rail Road, while its more southern rival is known as the Union Pacific Rail Way, *Eastern Division*.

## Salad for the Photographer.

"I WILL tell you how I manage with my baths, and what I do with my old solution, when it will no longer yield a good negative. I never boil a solution unless it is an old silvering solution. I always keep two large baths made, in two bottles holding two gallons each. Have four or six quarts of bath in each bottle. When my bath is out of order, or fogs, I expose it to the sun

with an abundance of oxide of silver, previously filtering my bath. I leave it exposed until the next bath is out of order; then I change them, and put the sickened bath in the sunlight, and leave the cork out of the bottle. In winter I set it on a stool or shelf at the south window; the sun outside and the heat from the inside will keep the frost off the glass, so a bot-

tle will get sufficiently warm to drive off the excess of alcohol and ether. After my bath fails to yield good negatives, with such treatment, I add water to throw down as much iodide as is necessary; filter it; strengthen it up to forty or sixty grains; set it in the sun with the oxide of silver, or bicarbonate of soda; when clear I add a little acid, and use it for silvering paper. It prints quickly, and makes good prints, if the paper is sufficiently fumed. I have never been able to detect any difference between such silvering solution, and that prepared new of the same strength; in fact, I like it better. When my negatives are good my prints never get the measles.

A. G. EMERY."

J. P. H., Fairburg, Ill., wants to know how to produce "chocolate tones?" We answer, in several ways. First, Mr. Sarony's process is as follows:

Make two solutions. First, one ounce of common sal soda, eight ounces of water. Second fifteen grains of chloride of gold, two ounces of water. Add equal quantities of each to sufficient water to cover the prints to be toned. When the desired tint is obtained, immerse in a tray of clear water. They will dry one shade colder tone.

No. 2. To sixteen ounces of water add five to eight grains of gold; neutralize with bicarbonate of soda; in another bottle, put one ounce of water, and thirty grains of acetate of soda; in a third bottle, put one ounce of water to six grains of nitrate of uranium. Make this bath twenty-four hours before use. After they are all dissolved, put the uranium with the gold, then add to it the acetate of soda, and mix them well and filter.

It is a good plan to have a light-handled box made, to carry your holder in from the dark-room to the camera. Some pieces of blotting paper in the bottom will absorb the drippings. You will save a great deal of silver in this way, besides keeping your floor clean. It looks very slovenly to see the glass-room floor covered with silver blotches.

TO FIND THE EXACT FOCAL DISTANCE OF A LENS. On a piece of white card-board

draw with a pencil a perfectly straight line, equal in length to about half the height of your ground-glass, each end of the line being clearly marked with the point of the pencil. Next draw a vertical line of precisely the same dimensions as your focussing glass, and place the latter in your camera, fitted with the lens under examination. Now focus the card-board, which must be placed on a stand in a vertical position, varying the distance between the lens and the object, till the line on the card-board exactly coincides with that on the ground-glass. By measuring the space between the card-board and the focussing glass, and taking a quarter of that distance, you may obtain the precise focal distance of the lens.

News.

MR. JOHN E. TORBERT, Wilmington, Del., lost his collodion filter in the following manner. It was sitting in a warm place, and the expansion caused by heat inside drove out the ground stopper with great violence to the ceiling. In descending it struck the filter and both were pretty generally demolished. Moral. Loosen the stopper when you are not using the filter.

It is said that when a negative becomes checkered, or the film cracked, good prints may yet be obtained from it, after *rubbing* over the surface a tuft of cotton lightly charged with lampblack. This fills up the cracks and prevents them from showing when being printed from.

STICKING PAPER.—Dissolve, by the aid of heat, in 3 pints of water, 1 ounce of isinglass and 2 ounces of gum arabic. Boil down to about 1 pint, and apply it to the paper with a brush. A little sugar is a good addition.


FOR THE DARK-ROOM WINDOW.—"Mix an acid solution of sulphate of quinine with gum or dextrine, and paint the mixture over white paper. Cover the windows with it, and even on the brightest day no actinic rays will pass through it."—*Obernetter*.

If you are troubled with muddy water in washing prints, first wash them over with clean water before immersing them in the other, and the dirt will not adhere to them.

"I HAVE had much trouble during the hot weather to secure intense negatives without flatness, owing to my collodion becoming too old and acid. The following remedy, I find, cures the disease: In an 8-ounce bottle put 4 ounces of water, and add as much bi-carbonate of soda as the water will take up; then allow it to settle. To every ounce of old collodion I add 8 drops of this solution, and find I secure as good results as quickly as with fresh collodion.

J. STEHMAN, *Lancaster, Pa.*"

MR. JAMES PARIS, Fond du Lac, Wisconsin, has sent us a photograph of a lady apparently peeping out of a rose, and, although some know how it is done, we give the process in Mr. Paris's own words, he having kindly furnished it for the readers of *Salad*:

"In the first place, make a good sharp negative, of a rose or any other flower you wish (if a rose, I prefer a middling dark pink, as it copies much better). Now take a cork and cut it this shape,  and place the bevelled side on the uncoated side of the negative. Now you have the rose negative all ready for printing, and proceed to take the negative for the figure. Make the head a little larger than the under side of the cork, then vignette it so it will just show a little of the shoulders and make a print. Then place it (the head) under the cork, and print it in the shade, or you can put it in a printing-frame and vignette it and print it in the sun. If it is printed in the sun without the vignette it will print sharp outlines of the cork, which will spoil the effect. We print ours in the shade, as it blends under the cork better. When it is printed enough finish as usual, and color it if you wish, and you have the rose picture."

I HAVE recently hit upon a new application of a very old principle, which, though very simple, may be worth mentioning. Every photographer who cannot compass a cool dark-room knows the annoyance of having the collodion become overheated, sometimes blowing the stoppers from the bottles, and decomposing so rapidly as soon to become worthless. I am now keeping my

coating bottles incased in jackets of elastic cotton,—strips from an old stocking, in fact, wrapped once around and secured by a couple of pins. Dip the bottles in water every hour or two to wet the jackets, and the evaporation or drying off of the water will produce a degree of coolness sufficient to correct the evils referred to.—AUG. LARCOMBE, *Nashville, Tenn.*

MR. G. O. BROWN has sent us a stereograph from the marble of Venus and Psyche, which possesses great stereoscopic effect, and which he obtains in the following manner: Carefully cut out the figures from the background, put them between pieces of plate-glass, and place them in front of a long dark box. Copy with stereoscopic lenses. If you are careful to cut out the figures nicely, you will secure very nice effects.

BLACK STAIN FOR APPARATUS.—Dissolve, by the aid of heat, gum shellac in alcohol; grind in lampblack, and apply with a brush.

AVOID YELLOW LIGHT.—A yellow curtain should never be allowed in a skylight. A yellow house near by and yellow leaves in autumn often cause trouble, but it may be counteracted by hanging a thin curtain of blue gauze at your window.

KEEP up fair prices, and maintain a dignified and genteel deportment.—*Hill*, 1854.

PLACE a few scales of iodine in a large glass bottle, and apply the heat of a lamp. The bottle will be filled with beautiful violet fumes. On cooling, the gas will be condensed on the sides of the bottle, in a form resembling fern leaves.

NEVER trust to luck in your operations. Remember that "cause and effect" is a principle which must be regarded, and which, if duly attended to, will not disappoint.—*Hill*.

CARTES are sold in Chicago for 75 cents and \$1 per dozen. In our city "16 for 20 cents," are the terms on which pictures are taken. How despicable!



### OUR PICTURE.

AFTER a rest for a couple of months we believe our readers are quite ready for another gem in the portrait line. Through the kindness and skill of Mr. J. H. Kent, Brockport, New York, we are enabled to gratify them, and we feel sure that all will agree that our picture, this month, is a gem well worthy of careful study and admiration, and difficult to excel. "Oh! that I might make such work," we hear some of you exclaim, while you sit down to examine and enjoy it. There is no reason why you should not, if your desires are sincere enough to prompt you to follow the instructions given in our pages.

Mr. Kent works a north skylight, 10×12, without any side-light, and which, it is evident, he knows how to manage well. He uses an extra whole size instrument, made by Mr. Usener, of the Willard Manufac-

turing Company. "An excellent tube," all will exclaim, and so it is. Mr. Kent states that he has used the smallest stop in some cases when the distance from the image in the background, which is cut sharp, to objects in the foreground, is just five and a half feet. Quite a range, all will admit. His working formulæ are like those published in this volume on pages 34 and 158, so it is hardly worth while to repeat them here. He uses Mr. Sarony's toning bath. He adds, "With these formulæ, a sharp clear negative of a good-looking subject, in an easy position, well lighted, and with tasty accessories, very good effects can be produced." The obliging subject is Miss Gracie Calvert, of Rochester, N. Y., whom we cordially thank for doing *her* part so well towards securing such a lovely and beautiful picture for us. We have never published one more handsome.

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## Editor's Table.

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THE ZENTMAYER LENS.—We have given up much of our space to the Zentmayer Lens controversy for various reasons. First, it is of American birth, and consequently good, and to be stood up for; and, second, a theory and a principle are involved, the discussion of which must be of interest and value to our readers.

The *British Journal* says we are slightly in error as to our guess at the author of the paper republished from its columns in our last on this lens. If he will send us his name and address, the prints desired shall be his.

STEREOGRAPHS.—From Mr. J. B. Heywood, Boston, we have received a number of stereographs which are exceeded by none. No one tries harder than Mr. Heywood to make good work, and no one succeeds better. His recent trips have been to Freer's Glen at Watkins, N. Y.; to Ithaca; Cayuga Lake, and neighboring places, where he secured excellent negatives of well-chosen localities in those beautiful sections of our country. For nice, clean work, Mr. Heywood stands unsurpassed. The introduction here and there, whenever practicable, of an animal,—sometimes a sheep, sometimes a goose, and again a man,—in his views, adds much to

their charms. Some instantaneous marine views, and some *interiors*, by Mr. Heywood, are also excellent in every way. They are all brilliant, effective, and full of detail. His views are published by Mr. Frank Rowell, 25 Winter Street, Boston.

MESSRS. KILBURN BROTHERS, Littleton, N. H., have kindly added a number of new and excellent stereographs to our Niagara and White Mountain collections, which are even an improvement on some of their former efforts, and some of which are entirely new and original in their choice. They are all excellently taken, and show clean and skilful working. While these are very fine, they are eclipsed by some superb pictures of natural flowers, ferns, plants, and mosses,—difficult subjects though they are,—most exquisitely taken by these gentlemen. It will be impossible to secure anything more perfect by photography. While these have, doubtless, been taken in some conservatory, the artists have concealed this idea by the skilful introduction of a peculiar background, which deludes one into the impression that the plants were set up and taken in the gallery. They are elegant. Some of them are carefully colored in natural colors and look very much as they ap-

pear on the ground glass. A case of wax flowers among these is most beautiful. Even these are eclipsed by a picture called "A Day's Sport." It is of two great strings of speckled trout, lying upon a mass of snow-capped icicles. Real ice and real fish seem to be before us when we look at these. Such work will go far to advance photography.

MR. J. A. WILLIAMS, Newport, R. I., sends us a rock picture showing the most curious *profile* of a human face we have ever seen. We have seen some pictures full of faces, but in this the profile of a huge African is most wonderfully perfect.

LAKE SUPERIOR VIEWS.—Mr. J. Carbutt, 131 Lake Street, Chicago, accompanied the excursion to Lake Superior, lately made by the N. W. Railway Co., and secured twenty-four excellent negatives of scenes thereabouts. Among them are views of the sawmills at Peshtigo, Wis.; the ore docks at Marquette, Mich.; views in the Jackson iron mine; an iron ore train of 45 cars crossing Goose Lake; ore dock at Escanaba, 1300 feet long, and several groups of excursionists. They give one a grand idea of how rapidly the West grows, and are in Mr. Carbutt's best style.

CRADDOCK MANSION HOUSE, Ship St., Medford, Mass. The oldest building in the United States, retaining its original form. Photographed by O. R. Wilkinson, Medford. We are indebted to Messrs. Dodge, Collier & Perkins for a stereograph of it.

In describing Mr. Carl Meinerth's process for making "Mezzotintos" we were in error in saying he used *pulverized* mica. His process is, viz.:

"To place between the negative and the printing surface (paper, &c.) a sheet of mica, glass, or any transparent medium, or the glass of the negative itself, or a mat.

"Print now through a fine piece of plate glass, which is of course between the paper and the negative, the whole turned perpendicularly towards the sun."

We hope those who have had pulverized mica in their heads for a month will empty it out, as we were wrongly informed, and are glad to set Mr. Meinerth right in the minds of our readers. For further particulars, apply to him.

PHOTOPERIPATETIGRAPH.—This is the name of a very ingenious arrangement on wheels for the outdoor photographer. It is the contrivance of one of our Missouri subscribers, and will be illustrated and fully described in our next number.

Too late for this. We are also obliged to lay over, for want of space, a description of a very useful and promising process for making photographic transfers. We are glad to know that our friends look upon this as the very best medium for making known their inventions; but if they would secure *certain* insertion in the current number, we should have the matter by the 15th of the month. It would be a favor to us so to receive it. Our columns are constantly crowded, but on the first of January we propose to begin the publication of a *weekly supplement* to our journal, when we can take *all that comes, without delay*. Will it be acceptable?

"LE HEMICYCLE DES BEAUX ARTS."—We have received a copy of this elegant engraving from Messrs. Draper & Husted, 6½ x 42 inches large. It should be in the hands of every photographer to study positions and faces. It is a grand thing for that, containing about seventy-five figures. Draper & Husted, photographers, Ridge Avenue and Wallace Street, Philadelphia.

CABINET PORTRAITS.—Mr. T. R. Burnham, 351 Washington Street, Boston, favors us with four excellent cabinets of a lady in various positions. Made with an Ex. 4-4 Willard instrument, than which, he seems to think, there can be nothing better desired. They were all made on a cloudy day but one, some with and some without diaphragm,—the exposure, 10 seconds, being the same in each case. The difference is scarcely perceptible. The picture, this month, by Mr. Kent, was made with a similar instrument. They all speak highly for American instruments, and no wonder they received "honorable mention" at the Paris Exposition. They should have had a medal.

MR. W. J. BAKER, Buffalo, N. Y., has sent us some very nicely modelled cabinets, which are very creditable. They are accompanied by a silver and a carbon print, from the same negative. The former is the best print, as Mr. Baker says, but the latter is not the best carbon print that could be secured from his excellent negative. He rather argues against carbon, because people will want to change their pictures when the fashions change, and therefore do not care for "*absolute permanency*." This will be so in a few cases, but how many would collect large numbers of views of places and things, and thus add much to the photographic business, if they could be assured that such pictures would last? Let us encourage and try to improve carbon. We *must* come to it.





*Bozou Public Library*

PHOTO-LITHOGRAPHED FROM A PEN STUDY BY A. BERG.

FOR THE PHOT. CHIEF PHOTOGRAPHER.

AM PHOTO LITHOGRAPHING CO. N.Y. (OSBORNES PROCESS.)









J. H. KENT, PHOTOGRAPHER,

BROCKPORT, N. Y.



THE

# Philadelphia Photographer.

Vol. IV.

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No. 45.

## MARbled STAINS ON THE NEGATIVE.

BY M. CAREY LEA.

THERE is a very peculiar and well-marked form of stain known by this name, and also called "fortification stains." It is well described by these names, for the resemblance of some of its forms to marbling on paper is very striking. Other forms are very similar to the veins in fortification agate, whence the name. These stains constitute a well-marked variety, characterized by the following peculiarities:

1. They are light-gray white and silvery, but have not a full metallic lustre.
2. They are not in the film, but on it.
3. They appear almost exclusively in warm weather, at least are much more troublesome in such.
4. They appear indifferently with an iron or pyrogallic development.
5. They are most apt to show themselves when some little time elapses between sensitizing and development. Often accompanying otherwise faultless plates.

This is a form of staining which sometimes causes great trouble to practised photographers, and may appear when the chemicals are in excellent order. Mr. G. W. Wilson, in one of his interesting papers contributed to the *British Journal*, alludes to having suffered much inconveni-

ence from it. I may remark, by the way, that an excellent figure of this description of stain was given in the *British Journal* for July 7th, 1865,\* where several varieties are characteristically represented. Sometimes these form a succession of arabesques, sometimes roundish blots, concentric circles, crescents, or even, though less frequently, long smears. But, however they may vary in form, they are always silvery white, and possess the other characteristics above enumerated.

A great deal of ingenuity has been expended on these stains, though without any very positive result as to their cause. In the editorial article accompanying the figure above referred to, the editor states that he has satisfied himself that they arise from the unequal drying of the bath solution on the film. He remarks that if the film, before development, be scrutinized by reflected light, the markings that will come out in the development, will be seen beforehand, and recommends to put wet blotting-paper on the back of the plate, and roll up the dark slide in a damp towel.

I have scarcely ever been troubled with this form of staining until lately, when it showed itself on several plates in succession. I set to work to find out the cause, first referring to what had been already published

\* Reprinted in *Photo. Mosaics*, 1866.—ED.

on the subject. I did not find the above explanation hold good. The interval between sensitizing and development was, to test it, purposely prolonged. The bath solution collected more or less in ridges, and in one or two cases the subsequent stains did exactly follow these ridges; but generally not. Plates with many ridges would develop without any stains at all; and when stains came, they would often be strikingly different in position, and form from the markings visible on the film before development.

Professor Towler has also examined this variety of stains, and comes to the conclusion that they depend upon the presence of some little scum upon the surface of the bath. Recommends filtering, which, in his case, he observes, completely removed the trouble. I, however, found these stains to appear with a new bath, the surface of which was irreproachable. Evidently this could not be the cause.

Mr. Kusel has likewise given his views on this subject. He affirms that they arise from too horny a collodion, and recommends to mix in some old red collodion. Although I think (just as in the foregoing cases) that this cause may possibly lead to the production of such stains, I am satisfied that they may, and generally do, arise independently of it, and the same may be said of the next following suggestion, made some time back by myself, viz., that these stains were the results of using a developer too strong for the particular case in question. Although this may, and doubtless is occasionally the case, I believe it not to satisfactorily resolve the problem.

I believe, however, that by a careful study of this matter, I have been able to arrive at the cause of the trouble. The great source of these stains I hold to be letting the film become too dry before plunging it into the nitrate bath.

It will easily be seen, then, why these stains occur principally in summer, because then the drying is so much more rapid, and due allowance is not made for it.

I conclude from my results that in hot dry weather, there is scarcely more than time enough to get a plate into the bath after pouring off the excess of collodion. Of

course the plate requires to be rocked until the drops just cease to fall, then it should be laid quickly on the dipper and be plunged in, not, however, suddenly or rapidly. The same amount of drying that in damp cold weather may require half a minute or more after the rocking is done, will take place in hot dry weather whilst the liquid is being drained into the pouring-off bottle.

A plate is never too soon in the bath unless the film exhibits injury in consequence. Some say that when the interval is too short, the film will leave the plate in ribbons. This I have never seen take place except with very bad pyroxyline. According to my experience, when a plate has not had the needful time, that fact makes itself evident by a peculiar change in the structure of the film, most apt to appear in a roundish spot a couple of inches, more or less, in diameter, generally showing itself towards the middle of the plate. The appearance of this spot, it is not very easy to describe; perhaps I may give some idea of it by saying that it recalls the inside structure of a freshly broken lump of camphor. Moreover, this appearance must be known to most photographers. So long as this is avoided, the less time, I am satisfied, that intervenes between the pouring on of the collodion and its immersion in the bath, the better.

I hold, then, that the tendency to these stains may, to a great extent, be got over by reducing the interval between collodionizing the glass and plunging it into the bath as much as possible. There is, however, another source of trouble that acts conjointly with this, and which is not sufficiently recognized.

Our alcohols and ethers are made stronger than they used to be, and are often actually too strong for photographic use, at least in the summer. Some persons have published formulæ in which "absolute alcohol" is absurdly required. Now, alcohol is only rendered absolute with great difficulty; after it reaches about 98° per cent. the last two per cent. of water are only got rid of by repeated distillation over roasted carbonate of potash. I have, myself, prepared a good deal of absolute as well as of nearly absolute alcohol, whilst investigating

some of the ethyl bases, and I think it safe to say that absolute alcohol is a thing almost unknown in commerce. The "absolute alcohol" of commerce is generally 95 per cent. alcohol. In one case I purchased "95 per cent." and "absolute" alcohol from a dealer, and found that they had exactly the same specific gravity! Now the simple fact is that 95 per cent. alcohol, with concentrated ether, makes too strong a collodion for summer use. To a quart (32 ounces), of such collodion, there may safely be added from one to two and a half drachms of water. That which I am now using has had the latter quantity,  $2\frac{1}{2}$  drachms to the quart added. Generally with good alcohol 1 to  $1\frac{1}{2}$  drachms, will be found a decided improvement. If it is found to be too much owing to the alcohol having been of lower grade, it is easy to add an equal quantity of collodion, and thereby diminish the proportion. If the alcohol is made too watery, it shows itself by crapy marks, visible in the fixed negative.

Collodion that has been thus watered, possesses the following advantages: the film is less repellent, it stands delay better, and is less apt to stain.

Consequently the secret of having plates that will bear delay between sensitizing and development, lies mainly in these two points: add as much water as your collodion will bear, and plunge it into the bath the instant that the film has set.

Whilst I attribute to the causes here mentioned the main origin of the difficulty, I am far from discountenancing the other remedies spoken of, and which may be useful to aid in preventing the stains. A very thick piece (best double) of red blotting-paper, well moistened and placed behind the plate, is undoubtedly very useful and well worth applying. So, too, the nature of the collodion is undoubtedly important. Collodion that answers well for immediate development may, as Mr. Hughes has shown, fog when the time of delay is considerably extended. The bath should be always perfectly free from scum, and in hot weather the developer may usefully be reduced by mixing an equal quantity of water. But I am satisfied that each and all of these pre-

cautions will be found far less effective than that to what I have here called attention.

Before closing, it may be well to remark that few photographers are aware how easily and perfectly these stains may, for the most part, be removed.

This is best done before the negative is fixed. Keeping the plate very wet, take a very soft gilder's brush (it should be *very* soft, an ordinary camel's-hair pencil is wholly unsuitable), and wetting the brush also thoroughly, pass it over gently and steadily. The stain will at first resist, but presently comes away as a white powder. It will cease to be visible by transmitted light some time before it disappears by reflected, and it is best to stop as soon as the first of these results is effected. On one occasion I had a negative of which near one-third of the surface was covered by these stains; I did not wish to lose it, and, with a little care succeeded in getting rid of the whole of them. Without great care and gentleness, however, the film will give way; with good pyroxyline and careful manipulation, however, this need rarely happen. A piece of *extremely* soft paper, thoroughly wetted, answers even better than the gilder's brush, and is less apt to break the film. The paper must not be folded, but a single thickness tapering to a point must be well wetted, and the point be drawn gently over the stain.

### A New Photograph Album—Photographing on Wood, &c.

TO THE EDITOR OF

THE PHILADELPHIA PHOTOGRAPHER.

MY DEAR SIR: The August number of your excellent Journal, with its wealth of interesting matter, reminds me it has been a long time since I have contributed anything to its columns. Let me tell you, if you please, of a, to me, new kind of photograph album. A friend residing in a rural ward of this city, and who, by the by, is a very skilful amateur photographer, has recently made great changes in his dwelling-house, such as necessitated the repapering of all the rooms. One of them (not much used, and hence less likely to have its wall-paper injured), he has cov-



ered with a pattern consisting of neat and graceful scrolls, including in the figure oval medallions of the size of an ordinary card-picture. These medallions are almost white, and of themselves rather spoil the effect of the figure, looking, as a lady observed, like white eggs; but he has begun to fill all these little ovals, and there are hundreds of them, with card-pictures of his friends. The effect is excellent, the whole character of the paper being changed by the picture. He begins by scattering about such pictures as he has already at hand, so as to cover, in part, as much of the wall as possible. Near to the ceiling and floor he will put fancy portraits of not so much interest, keeping the best and the most valuable to him from association, where they can be the easiest seen. Many of your readers, no doubt, have in their rooms similar paper; let them try the effect, and my word for it, they will soon have the fever for collecting card-pictures. The makers of paper-hangings might improve on the idea, and in the figures leave room for various sized pictures, so that some of the new-size cabinet portraits could find a resting-place in groups of the smaller sized card-pictures. Please encourage this notion in your columns, and may be it will help to revive the photographic trade in some directions. The same gentleman who originated the above idea, in building a room on the ground floor under his library for a sort of a shop, &c., has tried the experiment of putting down first a mortar-floor in which strips of wood were imbedded. When dry, the strips were taken up, and a layer of hydraulic cement laid down, replacing the strips in this new bed. Finally, when the cement had dried, the strips were again taken up, and the whole surface covered with coal-tar, and the strips imbedded in it; the floor-boards, also well coated with tar on the under side, were then nailed to the strips. The floor now is very firm and solid; can be pounded on without producing through the house any annoying vibrations, and will, no doubt, prove durable. In this room he has partitioned off his photographic dark-room, and in it he has all that can be wished for to make good pictures.

A few words now about "Taylor's Method

of Photographing Engravers' Blocks." You say he claims a reflector in combination with a photographic camera for obtaining a reverse image on the plate. I thought that was the common way of doing the thing. Five or six years ago, a wood engraver, I think his name was Baxter, wanted me to give him reverse negatives of some machinery, that he might print direct on the wood-blocks, and for that purpose brought me his 45° reflector to attach to the front of my camera, and stated that he had used the device for a long time. To me, and to many others, it is no new idea, and I was surprised to hear that a patent had been obtained for it. I suppose you are aware that another very common way of making reverse negatives for printing on wood, is to use thin glass for the negative, then so adjust the holder and ground-glass that the sensitized plate can be put into the camera with the film side of the glass away from the lens, and yet have the film surface coincident with the focusing surface; the negative thus obtained, is reversed, and is in proper condition for printing on the wooden block. I have also seen some good printing on the wooden block done from ordinary negatives by means of a solar camera, the negative being so placed as to reverse the image on the wood. Again, with an ordinary negative placed glass side next to the wood, and light admitted through a long box painted black inside, so as to shut out all but parallel rays, a good, sharp, reverse picture may be made.

These last plans are such as would at once suggest themselves to any one requiring the production of reverse pictures on wood from existing negatives. And it is often the case that new reverse negatives cannot be obtained. A good solar camera arrangement for this purpose has the manifest advantage of producing on the wood any size picture, either larger or smaller than the existing negative, as may be required. Thus it is no uncommon thing for a manufacturer of some standard article to have wood-cuts of it prepared for insertion in advertisements, and for printing in circulars as well as on the outside of letter-envelopes, and it is desirable to have vari-

ous sizes of cuts to suit each case. With the solar camera the drawing on the wood can be made of any size from the one negative.

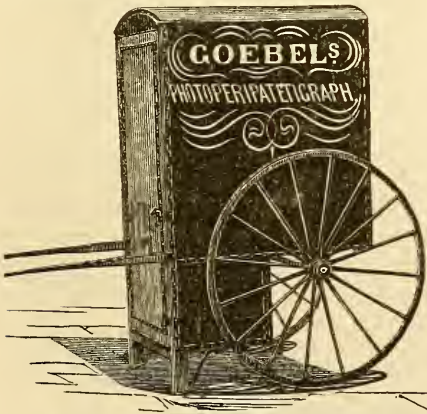
Yours, truly,

COLEMAN SELLERS.

### GOEBEL'S PHOTOPERIPATETIGRAPH.

A FEW years ago, one of the great drawbacks to out-door photography, was the difficulty of obtaining some proper place to develop the plate. At present, however, there are many devices in use by which the photographer may do this with as much ease and comfort as in his dark-closet. For stereoscopic and whole-size plates, the various tents described in our columns are very good; and for larger plates the photographic wagon is very useful, but entails the expense of a horse. Something between the two, which will do for all sizes, always be at hand, ready at a moment's notice, has been needed, by means of which the photographer may hasten to make a picture of a corpse, a building, a boiler explosion, a parade, or anything else out of doors.

It seems to us, the vehicle described below will meet the want. It is the idea of Mr. R. Goebel, St. Charles, Missouri, who kindly sends us a description of it, and a negative to print upon wood for the engraving below.



Mr. Goebel calls this his "Photoperipatetigraph." Do not look in the dictionary for it, because it is not there.

It is large enough to hold all the apparatus and instruments for out-door work, and can be moved about *à la* push-cart, by one man with the greatest ease. Its construction is so simple that a description is hardly needed. The body is 3 feet wide, 3 feet 10 inches long, 4 feet 3 inches high from bottom to top at the front end, and 6 feet from the ground to the top at the back. The shafts project 3 feet 4 inches from the body, and the whole is mounted on carriage-wheels. The front end is supplied with a 10 × 12 orange-colored glass, which admits all the light necessary.

The internal arrangements may be made to suit one's self. Drawers for the instruments; shelves for the bath, pans, &c.; pockets for the bottles; and a place for everything, and everything in its place, are all required to furnish it. The covering is black oil-cloth, which is a good protection, and keeps out the light. For those who are not too proud to push it around, it will be found an excellent contrivance.

Mr. Goebel has *not* patented the idea, but gives it freely to all. We thank him for our readers and for ourselves.

### SOFT PRINTS FROM HARD NEGATIVES.

THE general principles upon which prints of various characters can be obtained from the same negative, are pretty well known amongst photographers. It is known that with a weakly salted paper, and a moderately strong bath, a vigorous print can be obtained from a weak negative. It is known that with a hard and dense negative the best prints can be obtained from a highly salted paper, and bath of moderate strength. In either, the chief thing effected is alteration of the relative proportion of free nitrate of silver and chloride of silver. A considerable excess of nitrate of silver tends to the production of vigor, whilst a reduction of the proportion of nitrate of silver decreases contrasts in the print.

With a full knowledge of these principles, it is not always convenient for the photographer to avail himself of them. He is generally stocked with one quality of pa-

per, and he commonly works with a bath of such strength as best answers his purpose for ordinary work. He cannot always get a fresh sample of albumenized paper, with a modified proportion of salt, at a moment's notice; and it is not convenient to make fresh baths for exceptional cases. It is sometimes possible, however, to meet the difficulty without much trouble. A gentleman connected with the printing department of one of our first photographers, mentioned to us the other day, a successful mode of dealing with a very hard negative without making new preparations. The negative in question was one of those which possessed detail and gradation, but was so intense in the lights that it was considerably over-printed in the shadows, before detail in the whites could be obtained, chalky lights or black shadows being always present in the prints. To meet the case, it was resolved to minimize the proportion of free nitrate of silver on the paper; and after exciting it in the usual way, it was transferred to a bath of distilled water, for a few seconds, prior to drying. This proved completely effectual. The prints produced from the hard negative upon paper so treated were soft, delicate, and harmonious. Over-printing and bronzing in the shadows was considerably retarded by the absence of free nitrate, and the detail in the lights was fully out before other portions were overdone. The expedient, although a simple one, might not occur to every one, and may be found worth remembering.—*Photo. News.*

### Mowan's Improvement in Making Photographic Transfers.

DURING a recent visit to the Patent Office, we were much interested in some specimens of photographic transfers, by a process patented June 25th, by Mr. Arthur G. Mowan, South Bergen, New Jersey. The principal objects of the process are the reproduction of drawings, engravings, printed matter, manuscripts, and other similar things, by the action of light, so that the reproduced figures, forms, or letters, may be readily transferred to stone, zinc, or other surfaces for printing or engraving,

in the manner described below; and it is claimed that the operation is much facilitated by its use, and results superior to those produced by any process heretofore known are effected, especially in the reproduction of line engravings, printed matter, and manuscripts.

The specimens we were privileged to examine, were very perfect in their way, and in future we shall take occasion to say more about them, and probably gratify our readers with a specimen. There are six distinct features in the process, which are:

First. The preparation of the paper on which the photographic picture is to be formed. Second. The preparation and application of the coating for the paper, which is to constitute a material to receive the action of the light and form the picture upon the paper. Third. The transfer of the picture from the negative to the paper by the action of the light. Fourth. The preparation and application to the surface of the paper so bearing the picture of a second coating, to give color to the picture and to form a medium for transferring the picture from the paper to a surface of stone, wood, or metal. Fifth. The removal of both coatings from the parts or spaces not covered by the picture. Sixth. The imprint of the picture so made and developed upon stone, zinc, or other metallic surface, or wood. The workings of the process are as follows:

A negative may be taken in the ordinary way, of any matter which it is desired to engrave or multiply, or, if the design is originally taken for the purposes of this mode of transfer, it may be made or traced upon glass which has been coated with a film of asphaltum, varnish, or other opaque matter that will answer the purpose, or any other mode may be adopted for producing the picture in such a way as to give alternate opacity and transparency or translucency, so that a proof may be printed through it by the action of the light. Having a picture so made or traced upon a material through which the light can act, proceed as follows:

First. Take any good paper which has a suitable texture for photographic printing (Saxe being preferred), and dip it in a bath



of sour-milk whey or lactine, for the purpose of giving it greater solidity and power to resist the chemical substances afterwards to be applied to it, and then dry it at an ordinary temperature. Paper so treated, it is claimed, will resist the subsequent stages of this process much better than the ordinary albumenized paper. It is not necessary that the paper should be first albumenized before applying the whey, but if it has been, the whey improves the paper for this use. The albumen of the whey or lactine may be cleared from it by heating it before using it as a bath. It is best to apply the whey to both sides of the paper.

Second. For the purpose of coating the paper so prepared with a suitable material to receive the action of the light and form the picture, and also to be capable of ready solution in water where it has not been acted on by the light, take half a pound of French gelatine or French glue, and dissolve it in a pint of water; and while it is boiling add to it a solution of one-third of an ounce of permanganate of potassa in a quart of water. This composition, when cool, is ready for use. Now apply it to the surface of the paper so prepared, and allow it to dry in a dark-room. The paper is then ready to receive the photographic impression, which may be taken in the ordinary way under a negative or other alternately opaque and transparent or translucent design. The use of permanganate of potassa, in combination with the gelatine, Mr. Mowan claims to be new, and that its advantages are these: first, it prevents the gelatine from coagulating before it has been acted upon by the light, which is a great benefit, and one that has not been realized, so far as we are aware, by the combination with gelatine of any other ingredient capable of being used to advantage in its place; secondly, it works better and sharper in combination with gelatine in its exposure to the light, and in the subsequent washing, than bichromate of potassa, which has been heretofore combined with gelatine for the same purpose. In directing the use of gelatine, however, in combination with permanganate of potassa, he does not mean to confine his claim to the use of gelatine alone, because there may be other substances

which, in this combination, may be used as the equivalent of gelatine, namely, to form a combination that will act as a supporter of the bituminous coating hereinafter mentioned, and at the same time be capable of being so affected by the washing hereinafter mentioned as to discharge itself and the superincumbent bituminous coating hereinafter described from those parts which have not been acted upon by the light, and to retain the bituminous coating where it ought to be retained.

Third. Produce the impression of the picture on the paper coated as above described, in the usual way, by allowing the light to act upon the surface of the paper through the negative or alternately opaque and transparent or translucent surface on which the picture is traced.

Fourth. Prepare and apply a second coating of the paper, to give color to the picture and to form a medium for transferring the picture, as follows: Immediately after taking the impression upon the paper, and before developing the impression, coat the paper evenly upon the side which has been coated with the solution of gelatine and permanganate of potassa, with a composition made of equal parts of Judea bitumen, white wax, and Burgundy pitch, dissolved in a sufficient quantity of essence of lavender to make it capable of being properly spread with a brush in a thin and uniform coating, and after spreading it, allow it to dry in the dark. Asphaltum or Judea bitumen has been before-used for the same or similar purpose as that for which it is here employed, combined with one or the other or both of the other ingredients above mentioned, but in such further combinations as to form compositions entirely different in their working, for the purposes of a process of photographic transfer, from the composition invented by Mr. Mowan; for in such previous compositions the further ingredient of grease or oil has been introduced, and this he deems essential to avoid, because when present it gives the composition a greater tendency to penetrate the paper and spoil the picture by producing a semi-transparency in spots, than the one described, and it would also have a tendency to prevent the proper action of the final bath

upon the permanganate of potassa and gelatine. It is indispensable, however, that the coating used for this purpose should contain some ingredient or ingredients which will cause it to transfer and adhere to a surface on which it may be impressed. The combination of Judea bitumen, wax, and Burgundy pitch, which is above described, accomplishes this result, and gives a tenacity and a sharpness of outline which are highly satisfactory.

Fifth. For the purpose of developing the picture upon the paper by the removal of the coatings from the parts or spaces not acted on by the light, place the proof so coated, with its black side upward, in a bath of cold water, which dissolves the permanganate in those parts or spaces which have not been acted on by the light, carrying with it the superincumbent coating of bitumen, wax, and Burgundy pitch, and finish cleaning the proof by a few strokes of the sponge, after which it is dried, when it is ready to be transferred.

Sixth. Transfer the picture, made and developed in the manner above described, by contact and pressure, to a lithographic stone, or to zinc or other metal, or wood, in the ordinary manner, to be printed from it upon stone, or etched or engraved if upon metal or wood.

The above-described process enables us to transfer to a lithographic stone to be printed, or to metal plates, or to wood to be etched or engraved, almost or quite any design or imprint, in such a manner as to give sharpness of outline and a clearness not hitherto attained, and, if conducted with reasonable care, insures great certainty in the result. When the design is transferred upon stone in the manner described, it may be printed from the same as any ordinary lithographic transfer. When it is transferred upon zinc or other metal plate, it may be etched by any of the well-known modes known to engravers, the composition of bitumen, wax, and Burgundy pitch protecting the parts covered by them from the action of the etching fluid. When the design is transferred upon wood it forms a clear, well-defined, and bold outline, to guide the engraver in his execution of the work of cutting; but these last uses of these

improvements will probably be of less importance, owing to the fact that the design can be much more cheaply and readily transferred to a metal plate, and at once etched, when it will be ready for the press. When it is desirable to engrave in sunken lines, as is very commonly done upon the harder metals, such as copper and steel, a positive print can be taken upon glass in the usual manner, and the remainder of the process conducted the same as already described.

Mr. Mowan claims as his invention—

The combined process above described, for making photographic transfers by means of the several methods, preparations, applications, and compositions above described, or their equivalents, and the several elements of the same.

We think his invention is destined to be a very useful one.

## A USEFUL METHOD FOR HIDING DEFECTS IN SKIES.

BY VALENTINE BLANCHARD.

It unfortunately frequently happens that some of the most artistic negatives are marred by some defect in the sky, which will show in the print. The following method will be found very useful, not only when the sky is defective from marks, but when it is necessary to introduce a little light into a sky unnaturally thin and gray.

Gum to the back of the negative a piece of tracing paper of the right size, taking care to get it perfectly smooth. Now with a very soft and black drawing-pencil work rapidly on the paper over the defect, making the lines take every direction until indefinite fleecy clouds are formed. More pressure must be used just where the defect is situated, and the edges can be softened off to any extent. In the hands of those who do not work with the brush this method will give more softness, and will be found more manageable than Indian-ink. When it happens that the sky is too uniform in tint, a few lines rapidly made, and lightly touched, will do wonders in improving the effect of the negative.

Sometimes it is necessary to make a sky

a trifle darker in places where it is too white. In such a case gum tissue paper at the back, and then dip the finger in paraffine oil, and after wiping off that which is superfluous, rub rapidly on the parts it is desirable to darken. If there is not much paraffine on the finger the edge will not be so abrupt. By the employment of the pencil afterwards very effective clouds can be introduced with a sky hopelessly blank.

This method will also be found very efficient for vignetting where a special form of vignette is required. The paraffine should be applied freely to the tissue paper just where the first softening off is desired, and the pencil can be made to complete the gradation. It may be necessary to have cardboard outside, but cotton-wool will not be needed, and thus the general shape of the vignette will not be altered.

With a little taste, most artistic results can be produced, both in landscapes and portraits, by the employment of this method.—*Y. B. of Photo.*

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### CARBON vs. SILVER PRINTING.

The following communication was received by us about the middle of July, but our columns being much crowded when it arrived, and going to press earlier than usual, we were unable to give it place in our August issue. We know the author to be perfectly competent to discuss this matter, and agree with him as far as the merits and costs of the process go. With reference to the acceptance of Mr. Wenderoth's paper by our Photo. Society, it is only fair to add that only one person present at the time (ourselves), besides Mr. Wenderoth, had ever worked in carbon or even seen much of its results, and were therefore unable to judge whether Mr. Wenderoth was right or wrong. *Acceptance* is not always *approval*, and it was well enough to have Mr. Wenderoth's paper "accepted and entered upon the minutes" in order to enable us to compare it in future with other papers like the following, and to show how greatly Mr. Wenderoth was in error.—ED. P. P.

TO THE EDITOR OF

THE PHILADELPHIA PHOTOGRAPHER.

DEAR SIR: In the July number of your valuable Journal, "a paper" with the above title was printed, which it was stated had been read before, and accepted, with a vote of thanks, by the Photographic Society of Philadelphia, and "ordered to be entered on the minutes."

"Papers" read before scientific bodies

always assume an importance which might not otherwise be accorded to them,—for the presumption is, that a society before whom an important or novel matter is discussed, is peculiarly qualified to judge and decide upon the merits or demerits of the views presented for its consideration and approval or rejection. Had the "paper" alluded to appeared in your Journal only as a communication from a correspondent, and not been dignified by the appellation of a "paper," read before a respectable society, it would not have attracted any serious attention; but the contrary being the case, I beg to reply to it.

First, however, to digress a little, there is one fact in regard to photography, which it may not be out of place to record here. It is this: from the hour of its first discovery up to the time of the invention of the carbon process, the art of making pictures by the action of light, was but a beautiful toy, a kind of fairy-like dream, now thrilling us with pleasure and hope, then plunging us into misery and disappointment,—exquisite pleasure from the beautiful images obtained, pain and misery as they faded from our sight. It lacked only the addition of PERMANENCE to make it perfect. Large rewards were offered by governments and individuals for a method by which permanent pictures could be produced. The *carbon process* was discovered, the rewards offered were paid to the successful inventor, and photography, from being only a charming toy, became a beautiful and substantial reality. It has just commenced its true life, and will now be sought, cherished, and idolized as never before. It will soon take its place, and a high one, too, in the great race of civilization, beside its kindred arts of engraving, sculpture, and painting, in the illustrations of history, biography, geology, and in hundreds of other forms; for its productions, while far more truthful and delicate, are now as enduring as the productions of the copper and steel plate, the lithographic and letter-press.

Before proceeding farther, I ought to say that, although not a professional photographer, I have always taken a deep interest in all matters connected with the progress of the art, since its first discovery in 1839,



and it was with regret and surprise that I noticed the slight debate or opposition by which the vote of the Philadelphia Society was secured in indorsing such a singularly erroneous, rambling kind of "paper," whose whole *animus* was evidently and studiously unfavorable to the best interests of photography, and which, *with such an indorsement*, was well calculated to deceive and discourage many of its truest votaries. It affords me sincere pleasure, however, to say that *one* member of the Society replied at length, and with animation, to several of the author's misstatements, pointing out and correcting them; and after reading his very pertinent and sensible remarks, I am truly astonished that his efforts did not deter a majority of the members present, if not the whole of them, from accepting the "paper," or returning a "vote of thanks" to the author.

The statements, assumptions, and inferences of the "paper" in question, are as inaccurate, to use no harsher term, as can well be imagined or contrived. To those persons familiar with carbon and silver printing, those who know the real character of each process, the publication of such a tumid, inconsistent, fallacious document, will do no harm. But to many of those who are still waiting and hoping, who have been earnestly watching and praying for long years past for the advent of some means by which all the beauties of silver printing could be combined, with a certain and permanent photographic process, such a loosely written empirical publication, with the high sanction of the Photographic Society of Philadelphia, will tend, if allowed to pass unchecked and uncontradicted, to produce a large amount of mischief. It is for this reason that I feel impelled, by a sense of duty, to make a brief reply to its author.

It is true, he exhibited some specimens of carbon printing, of his own work, but this was done clearly in a spirit of self-adulation, for he took especial pains to say he had "never seen any printed account of Swan's process, and had to FIND OUT EVERYTHING FOR HIMSELF!" What a prodigy, *not to see* that which was printed in all the photographic and hundreds of other jour-

nals, and yet able "*to find out EVERYTHING for himself!*" He also says if his own "carbon prints are not yet as good as they ought to be," he hopes "to be able, in a very short time, to produce them equal to any." Now if carbon prints are as worthless as he represents them, and the process never coming into use, and if, as he says, he prefers silver to carbon, why does he say he hopes, "in a very short time, to produce them equal to any?" Where's his consistency?

In another paragraph, he says: "I think that a carefully made silver print, with the application of some preservative, can be made as permanent as a carbon print." This is "a blessed free country," and every one has a right to think pretty much as he pleases, provided he does not think, and practise on the thought, that he has a right to his neighbor's property, life, or wife. Still it would be extremely interesting to know by what process of reasoning, by what kind of mental gymnastics, any one could have arrived, with our present knowledge of chemistry, at the belief that a silver print could be made as permanent as one in carbon. The fact that photographic silver prints were fugitive, and *could not be made permanent*, was supposed to have been well settled by the careful investigations of the commissioners appointed long since by the French government, when the great reward was offered for the discovery of a process that would afford a permanent photograph. Throughout the world this decision was accepted as conclusive, and it is certainly to be hoped that this unblushing declaration of an opposite belief, though backed by the "acceptance" of the Philadelphia Photographic Society, will not seriously disturb the opinions of the above-named commissioners, nor the decisions of the French Academy.

I will not attempt to correct, or even notice, all the misstatements in regard to what the writer calls "operations," and of which he has erected a battery formidable enough in appearance to frighten the Light Brigade; nor will I notice the misstatements in detail of his estimates as to "cost," for I have not the time to spare, and it would, besides, make this article too long for your pages, but I will, here and now, enter my

protest against the letter and spirit of the whole of said "paper," and against the vote of the Society by which it was "accepted." And I here give, from amongst many others, the following reasons for said protest, viz. :

1st. It is not true, as stated or insinuated, that the operations in carbon printing are formidable and expensive. [The truth is, carbon printing is cheaper than silver: *vide* Dr. Vogel's letter, on page 223 in July number of this Journal.]

2d. It is not true, as stated, that "every possible mode of making tissue is fettered with patents." [The truth is, there are but two processes patented, and there are four or five others open and free for the use of everybody.]

3d. It is not true, as stated, that "photographers will be obliged to buy permission to make tissue, or to buy it from the patentees." [The truth is, that photographers, without buying or even asking permission, can make tissue whenever they please, by either one or all of the four or five methods which are not patented.]

4th. It is not true, as stated or insinuated, that carbon printing was not taken up because the process was not "practical." [The truth is, it was partly because Mr. Swan did not, till quite recently, put his tissue, in any considerable quantity, into the market, and partly because photographers did not, and do not, like the trouble of changing their old modes of working for any new process.]

5th. It is not true, as stated or insinuated, that carbon prints are more likely to detach themselves from their mountings than other prints.

6th. It is not true, as stated or insinuated, that the permanency of a carbon print "is questionable." [The truth is the opposite of this: *vide* decisions of the French Academy.]

7th. It is not true, as stated or insinuated, that "a silver print can be made as permanent as a carbon print." [The truth is the opposite of this: *vide* decisions of the French Academy.]

8th. It is not true as stated, that in carbon the "printing is all guesswork." [The truth is, that carbon printing can be

done with an actinometer with perfect accuracy, or, the progress of the printing may be observed by transmitted orange-colored light, as well as silver printing by reflected light; but a good printer, without an actinometer or transmitted light, will not miss two prints in a hundred different negatives.]

9th. It is not true, as stated, that "it is a great deal easier in a silver print to remedy shortcomings in the printing." [The truth is the opposite of this: *vide*, published statements of Swan and Rowell.]

10th. It is not true as stated, that "printing (carbon) in the sun is too hazardous."

11th. It is not true as stated, that it is "quite a job," and requires a "good deal of practice," to pass large prints through the press. [Mr. Black passed three prints, 17 × 21 inches, through the press from the first six he ever made (two or three were 8 × 10), and did *not* find it "quite a job," but a very easy matter, though he had not had any "practice."]

12th. It is not true, as stated, that "there is no necessity to soak the print after development in cold water any length of time."

13th. It is not true, as stated, that "all the bichromate is fully washed out when the print is developed."

14th. It is not true, as stated or insinuated, that gas has to be used to furnish "light to work by."

15th. It is not true, as stated, that "a leatherified carbon print repels water-colors, even more than albumen silver prints, and makes, therefore, retouching and coloring near to impossible." [My own experience with "leatherified carbon prints" is quite the opposite. I worked some in water-colors, long before photography was discovered, and upon a great variety of material, such as ivory, horn, parchment, shell, marble, wood, paper, &c., and I never found anything that received the color more kindly and satisfactorily than these "leatherified carbon prints." This, also, is the experience and freely expressed opinion of several of the best skilled water-color artists in the United States. All the artists I have seen, some four or five, all that have worked on the "leatherified car-

bons," are in ecstasies over the superior and wonderfully fine working qualities of the "leatherified carbon prints."]

16th. It is not true, as stated, that it is "particularly impracticable," in the carbon process, "to reproduce Daguerreotypes, or such pictures where new backgrounds have to be introduced or alterations made." [It has been done, and nothing "impracticable" encountered, only a little more work required.]

17th. It is not true, as stated, that "for all this kind of work carbon prints are out of the question."

Towards the close of this inexplicable "paper," the author declares that he, himself, for general work, prefers silver printing! "There is no accounting for tastes,"—and this declaration is certainly frank, if not sensible. He may rest assured that *his* preferences will not be interfered with.

It may be that a *permanent carbon picture*, with vastly more power, truth, delicacy, and beauty than any silver print, from the same negative, ever had or ever can have, is *not* preferable to a flat, weak, *fugitive* silver print, but mankind generally, and persons of culture especially, will never be persuaded to believe it, and carbon pictures, therefore, will soon displace silver in the same manner that the silvered albumen and paper displaced the Daguerreotype plates.

I am glad to be able to refer you and your readers, and the Photographic Society of Philadelphia, to the letter of Dr. Vogel, also in the July number of your Journal, p. 223, as a perfect refutation of the enormously extravagant and misstated "bill of costs" for carbon, which the author of the "paper" sums up as follows: "\$139 for one ream of silver prints, against \$228 for the carbon!!!" Now Dr. Vogel, in his letter to you, says Mr. Braun states the cost of carbon printing to be ONE-EIGHTH LESS than the cost of silver! Mr. Braun is the proprietor of one of the most extensive photographic establishments in the world, and there can be no doubt about the accuracy of his estimates, for he has made a very large number of carbon prints,—many very large in size,—and is making them every day.

There is no question but that carbon

printing, when conducted in a systematic manner, with proper conveniences, can be done at considerably less cost than silver, and with much more ease, certainty, and satisfaction to all interested.

Yours, truly,  
VERDADERO.

### ON FIXING NEGATIVES.\*

In fixing a picture, whether we use cyanide or hypo, much the safest, cleanest, and most economical plan is to have a dipping-bath. If cyanide be used, it has less chance of getting into any stray cuts or scratches we happen to have on our hands or fingers—sometimes very troublesome, perhaps dangerous—not to speak of the poisonous fumes inhaled when pouring it on, or when immersing the plate in an open dish. I think most photographers would give the preference to hyposulphite of soda for fixing if they were not afraid of having it near their baths. But if it be kept in another place—as it is not necessary to have either of the fixing agents in the dark-room—it has this good advantage over the cyanide, that it does not seem to thin down the negative nearly so much as the cyanide, being less energetic in its action, and I think it also leaves the negative of a better printing color. A point very often neglected, and which is very necessary to aid in securing clean pictures, sometimes saving a world of trouble, is to make it a habit, after developing or fixing a picture, to rinse the hands in clean water, and dry them carefully on a cloth kept for that purpose: it will help to keep our tempers sweeter, and leave us in a more amiable mood than if we discovered sundry smears and smudges under the collodion film, on coating or developing the next plate, which our *now* chemically-clean fingers had something to do with.

The last bit of manipulation before printing, viz., varnishing the plate, is best done by drying the negative at a good clear fire, and, while the plate is warm but not hot, pouring the varnish in the same manner as collodion, giving it time to penetrate the

\* From British Journal of Photography.



film. When poured off, hold the plate immediately to the fire; by so doing, we get a fine brilliant surface on the negative. Those varnishes which require heat in their application, I think are the best and most reliable.

If proper care has been taken in previous operations, little touching-out will be required; but if it be required, China ink and ivory-black are very good mediums for the purpose.

I would, then, be very far from advising any one to give up any process with which he is familiar, and upon which he can rely for fair results; but I would rather suggest that more attention be given to the little minutiae and details of the process, as the surest way of arriving at the best possible results; for those who jump from one process to another, simply because it has novelty to recommend it, seldom attain to great success in any one of them. There is no better quality we, as photographers, should cultivate than the power of properly estimating the value and worth of any new process; for all the real improvements and alterations in the photographic art, during the last twenty years, can be counted on our fingers. Therefore, I think you will agree with me that the production of good work is not to be attributed to complicated or "secret" formulæ of any description, but rather to a systematic and intelligent application of such simple recipes as we know, from long experience, to be capable of producing clean and clear pictures.

A. ASHER.

MR. FOXLEE has seen negatives protected with *Sahnée* varnish crack as well as those protected by English-made varnish. When a negative became damaged in that way, good prints might still be obtained by *rubbing* over the surface a tuft of cotton lightly charged with lampblack. That filled up the cracks and prevented them from showing when being printed from.

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NEVER make an engagement with any one to sit them at a certain hour, for you never keep your promise.

## NEW YORK CORRESPONDENCE.\*

THE Photographic Section of the American Institute having gone into summer quarters, that is, having adjourned over until September, your correspondent has lost his occupation, and proposes to prove to you by this, that he has not lost his existence, but is, as ever, willing to add his monthly contribution to your pages.

The object of this shall be to point out to your readers such places of general interest as may be of service to them when about making up a trip, or when about having what Captain Murphy Maguire, in the laughing days of the "Serious Family," termed "a day's shooting."

It cannot be denied that a proper selection of subject, combining, if possible, with natural charms, the charms of history, should ever constitute the study of the photographer, as well as the chemical laws which govern the actual production of his work.

Admitting this proposition to be true, it is proposed to start up the renowned Hudson River, and study as we go, its thousand beauties, and gain as well as may be, such amusement as we can, from the curious and entertaining scenes which constantly rise up before the traveller.

Quietly and leisurely we make our way to the steamer, that we may have the better opportunity to watch those who always come late, and enjoy, from a safe and quiet distance, the hurry, excitement, and confusion of their coming.

What a bustling, busy, excited crowd, "old and young, grave and gay;" a *salmagundi* of human nature in a bad humor, hauling, crowding, pulling; everybody busy taking care of No. 1; baggage-men and hack-drivers testing the strength of the anxious passenger's luggage and the depth of their pockets; old women with shrill voices insisting upon an investment in oranges, candies, and cake; boys, who evince a laudable desire to have you improve in literature and the arts, with a view of aiding you in such, propose the sale of yellow-covered trash, or some illustrated weekly made up of the scenes of a

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\* Received too late for our last issue.

prize-fight, a fearful accident by land or water, or a most capital photographic likeness, for five cents, of some poor unpitied felon who has but now paid, in a *capital* way, the penalty of wrong-doing. The last bell rings; its tolling gives warning to the lag last; with it, and in true unison, comes the familiar cry, "All aboard! all ashore who are going!" the final order, "Haul in the plank!" and we are off.

Now that we have fairly started, let us glance at our fellow passengers, and at our captain. The chief officer has the look of an old *fresh-water salt*, one who, in bygone days, braved the fearful navigation of the Hudson without faltering!

Each passenger is now settled and prepared to enjoy a moonlight trip up the river, willing to bid a short adieu to the fast disappearing city of New York, whose hundreds of smoking chimneys, and busy streets and piers, give token of untiring energy and ceaseless toil.

On the one side we have the quiet rural scenes of Westchester County, with its highly cultivated lands; on the other, the barren Palisades, rising heavenward from two to five hundred feet. Passing Fort Lee, Spuyten Duyvel, and Tubby Hook, we soon reach Yonkers, which lies at the mouth of Saw-mill River, one of the most charming spots anywhere to be found, abounding, quite its whole length, with scenery just suited to the photographer. It has been rendered famous by the magic pen of Irving, in "Wolfert's Roost," and other tales, and as well by Cozzens, in his "Sparrowgrass Papers," where it may be known by the more musical name of the Nepperham.

But a few miles above, near Dobbs's Ferry, a place of considerable interest during the Revolution, lies Sunnyside, famous as the residence for many years of Washington Irving.

In close proximity is seen the spot whereon Major André was captured, in his effort to reach the headquarters of Sir Henry Clinton, as bearer of dispatches and plans of the fortifications at West Point. Following the same road, we soon reach the charming scenes of Sleepy Hollow, with its haunted mill and superb scenery, so well

suited to the art of the photographer; its clear and ever-running brook bounding over the same rapids, forming the same cascades, and finally passing with sluggish movement beneath the same old bridge on which Ichabod Crane met the headless horseman, and mirroring as truthfully as in centuries past, within the depths of its translucent waters, the lordly trees which crowd its more than crooked banks, and the changing, moving panorama of the ethereal space above.

Crossing the stream we meet the old Dutch church built in 1699, with its crowded graveyard and old tomb-stones which record the virtues of those long since gone, and mark the mortality of this neighborhood for many generations. The pen of Irving has told well the story of these places, now let the pencil of the artist and the camera of the photographer place them on lasting record; there is enough, and more than enough, for all who will journey to these enchanting scenes.

The moon has just lifted her yet modest face above the eastern hills, and the chilling air and falling dew drives to the saloons the cautious passenger, leaving on deck only the rugged, and those who have an unfinished cigar to pass luxuriously into smoke, and one, one only of the other sex. For some time had your correspondent cast side-glances towards this fair one; he soon formed his diagnosis of the disease; it was of the heart; fatal; cause, the young man by her side; cure, matrimony. The loving couple, they sighed, gazed upon the love-inciting orb, while, with fast-beating hearts and tremulous tones they whispered in words of sweetest accent, mutual assurances of devotion now, and constancy through life. As the deeper shadows of fast-coming night thickened, and the hundreds of passengers could be counted by tens, the once respectfully remote chairs of our Romeo and Juliet seem, by some magic influence or unexplained phenomenon, to have drawn nearer, and hands late used to twist in embarrassment a glove or idly twirl a fringe, are now interlocked;—the whispering has all but ceased; the blushing nervous maiden, though she has not said Yes! has not said No! Spell-bound, wrapt in sweet

thoughts of present joy, and sketching on the yet unrealized future fancy scenes of coming bliss, we leave them with the prayer that their future may prove as free from the black clouds of adversity and discord, as is the glorious night of their betrothing free from threatenings of elemental storm. We are now among the Highlands, a description of which, so far transcends our power, that the effort must result in failure. It would seem enough to assure the photographer that it cannot well be surpassed. Views of noble mountains, with a winding river hurrying seaward past their base; choice subjects for the stereoscope, every way you turn, and all crowded with legends of the early days, when the Delaware chased the deer and the bear or contested in the struggle for life with the fierce Mingo.

The old Sugar Loaf rises grandly, nobly, in the distance, casting over the river the same black shadow as of old, when the savage red man silently paddled his birch canoe through its almost impenetrable blackness; still the same when the venturesome Hendrick Hudson forced his way to the river's source; or, later, when the deep, dark, and all but successful plans of the traitor Arnold were laid within its very shade.

Swiftly, steadily, we move along, and turning abruptly, we pass the Military Hotel on the left, and Constitution Island on the right. During the Revolution there was stretched from this island to the main land, an enormous iron chain, to prevent the passage of the British fleet, portions of which are preserved, and to be seen at West Point. Turning again sharply to the right, we pass along beneath the high hills, almost mountains, on the left, which, from their peculiar outline, are known as the Crow's Nest. Immediately opposite, lies the village of Cold Spring, celebrated for the enormous foundries where are produced the far famed Parrott gun or cannon. Above, and on the same side of the river, rises first Bull Hill, then Breakneck Hill, now called Storm King. These curious names are not without their history, which is simply this: In the early days of the settlement of the country, bordering the banks of the river, and before its natural wonders had been

christened, a bull, once domestic, but now wild, found a home upon the hill bearing his name; at night, and not uncommonly in the day, he ventured upon a little trip to the valleys below, much to the loss and terror of the peaceful tillers of the soil. Growing bold, he at last made himself a most decided nuisance, so much so, that it was agreed by all that Mr. Bull must die; armed and accompanied with dogs, the sterner sex started in pursuit.

They were not long in finding old Taurus, and chasing him to Breakneck Hill, he, in his flight, fell over a precipice, which, breaking his neck, named it. The new name of Storm King may be more elegant than the old one, but, inasmuch as it destroys the value of this legend, it can scarce be said to be an improvement.

Opposite, on the west side, lies Butter Hill, said to be so named on account of its even roundness and its fancied resemblance to a print of butter. The man who first made this discovery could not have lived to threescore and ten, his imagination must have hurried him to an untimely grave.

Thence, passing into smoother waters and tamer scenes, though beautiful, and as the small hours warn to rest, we seek our state-room, leaving one solitary passenger to keep the pilot's company.

Knowing full well that this letter does not tell of anything new, yet knowing it speaks of much that is beautiful and valuable to our art, interlarded with scenes of every-day occurrence in the tourist's experience, and hoping that the cameras and tripods of the workers in the "black art" may more often visit these places of interest, I am, as ever,

C. W. H.

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### A PHOTOGRAPHIC TOUR OF NEARLY 9000 MILES.

As photographing on the Plains is becoming more and more fashionable, the following letter will be found most interesting and valuable.—Ed. :

DEAR "P. P.": Having safely returned from a somewhat prolonged and tedious trip in pursuit of information on matters



pertaining to photography, I embrace this opportunity, according to my promise, to give you some account of the trip.

I bade adieu to our metropolis of the mountains six months ago, and took coach per the Overland Mail Company, on my trip westward. After leaving Salt Lake Valley and passing a divide, we entered Cedar Valley, where may be seen the ruins of what was Camp Floyd, now called Fort Crittenden. With the exception of the mountain ranges bordering Lake Utah and Salt Lake Valley, but few objects to interest the photographer can be found thus far. As one progresses westward, the country becomes more and more uninteresting, culminating in the Desert—a stretch of land of ninety miles, without water, barren, desolate, and God-forsaken, without a blade of grass or a green thing of any sort. Water for the use of the stations is conveyed in boxes on wagons, from the nearest springs. The tourist in search of landscapes, will find but very few combinations that will make pictures, for the stations are the only objects of particular interest, and a picture of any one of them would be a picture of them all, there is so little difference between them.

The country, from the Desert to Austin, Nevada, is a succession of alkali flats and mountain ridges, sparsely covered with cedar. I do not think it possible to secure more than five or six good views in the distance of four hundred miles west from Salt Lake City. At Fish Springs I saw about fifteen Indians basking in the sunshine on a heap of manure. It occurred to me that *such* a group would be interesting to the admirers of the "noble red men of the forest," and if I had been prepared, would have secured a negative of such a "LAY-OUT."

Austin, Nevada, is located in a narrow canon, and is a fair specimen of what "quartz on the brain" can accomplish in a few years. In all these mining towns we may find the representatives of almost every nation. Here the reformed Shoshone Indian saws wood and gets gloriously tight. There the Chinaman does the laundry work, instead of its being done by the ladies, who, by the way, are few and far between in this

delightful city, that can neither boast of a *garden* or a tree. On every hand you hear the clatter clatter of the stamps pulverizing the silver ore, and the hills on each side of the town are honeycombed by the burrowing miner. "Feet," "feet," "feet," is the universal talk.

I found a gentleman of the Teutonic persuasion trying to keep a gallery, *sans* chemicals, *sans* books, *sans* almost everything. It occurred to me that there was a fine chance for a live photographer in that town. I urged the claims of the various photographic publications upon him, and I hope he has profited by the suggestion.

Between Austin and Virginia we see constantly the same variety of flats and ridges, unbroken by any scene to please the eye or to suit the lover of the beautiful. Virginia is indeed a remarkable city, and one of the wonders of the great West. Immense structures devoted to mining interests, fine hotels, stores, &c., lit up at night with gas, reminding one of seaboard cities, and a busy moving mass of humanity all absorbed in the great question of mining and its details. There are one or two galleries doing pretty good work and a good business.

At Virginia we change stages and take the "Pioneer Stage Company's" coaches for Placerville. An hour's drive down hill brings us to Carson City, and from this point there is a gradual ascent to the summit of the Sierra Nevada Mountains. Nature has here atoned for the desolation of the previous six hundred miles, by bringing together everything to charm and delight the tourist photographer. The cedars are exchanged for the giant pines, the flats for the fresh-water lakes, and snow-capped peaks for the barren ridges. We crossed the mountains by a magnificent road, but on descending the Pacific slope we encountered horribly muddy roads, and it will be a long time before I forget the night's travel before reaching Placerville. As many as twenty times we were invited by the driver to "balance the coach," first on one side and then on the other, to keep it from falling either into a ravine or a deep gulley in the middle of the road. Of course the railroad will do away with all this, and, instead of being pounded almost to a jelly, we may

cross in first-class coaches and hardly know it.

From Placerville we drive to Shingle Springs, and thence by railroad to Sacramento City, where we take steamer for San Francisco, generally arriving at the latter place about eight or nine o'clock, P. M.

For enterprise and every feature calculated to make a great city, San Francisco (in my opinion), stands next to New York. I believe I shall live to see the day when it will be the second city in the Union.

I lost no time in exploring its fine streets and observing its photographic productions. I may say that I was charmed with what I saw. I found many very fine galleries and spirited go-ahead photographers. Here the porcelain picture is known by the poetic appellation of "Sun Pearls." Every style of work can be obtained equal, with few exceptions, to any work I ever saw. The *Philadelphia Photographer* was in many of the galleries, and much thought of.

Among the most advanced in the photographic art, none stands higher than Mr. E. C. Watkins, who has produced, with his camera, results second to none in either the eastern or western hemispheres. I spent many pleasant hours with him, and found him ever ready to communicate information to the ardent photographer.

I was somewhat curious to learn his *modus operandi* for producing his large views in a climate so dry and difficult to work in. After so much attention to photographic ware, porcelain, rubber, and other materials for making baths, I found *his* to consist of pine wood coated heavily with shellac. In addition to this, he uses the water bath, by means of which he can take a greater number of pictures without losing his chances while the light is good. His negatives are taken, developed, and then placed in the water bath until he is ready to finish them. Just think of carrying such huge baths, glasses, &c., on muleback, and you can form some idea of the difficulties in the way of producing such magnificent results. In the matter of intensifying, he sometimes uses a very weak solution of bichloride of mercury, washes, then flows with a solution of iodide of potassium of about ten grains to the pint of water. Personally, I have

found such a method very serviceable with thin negatives; but it is a very nice point to know when you have applied enough. The rule I adopt in such cases is this: when using the above, I watch for the required intensity as I pour over the iodide solution. When sufficient is poured on, wash, then dry; it will become more intense. By coating with flint varnish, it will bring it to its previous condition before drying. It works best for over-exposed negatives; and for dense foliage nothing is better. I do not wish to recommend this method as preferable to the old one of intensifying before fixing with pyro and citric acid and silver, but in some cases where a negative may be too thin after fixing, it can be advantageously applied.

You may perhaps say that it would be better not to intensify at all, but different men have different modes of operating, and in every case where the results were beautiful, I did not find two men who worked precisely alike.

Great quantities of Mr. Watkins's pictures are sold in the Eastern States and Europe, as well as in California. Messrs. Lawrence & Houseworth publish some very fine stereoscopic views, and the galleries of Messrs. Bradley & Rulofsen, Shew, Selleck, and many others, are equal in appointments and style of work to those of first-class galleries in the Eastern States.

From San Francisco I took the P. M. Company's steamer for Panama, thence by rail to Aspinwall, and from there to New York. As this route is more familiar to many of your readers than the overland trip, I pass by in silence the many scenes incidental to such a journey, and would merely say that any devotee of the dry process may obtain a few views at Acapulco, Panama, and Aspinwall, if he is well prepared. Such views would be very interesting, and would repay the trouble of obtaining them. Everything to be used should be condensed as much as possible, and none but a first-class passenger should attempt it.

At Aspinwall there is a fine *one-horse* gallery. Being unwell, I did not see the photographer, but, from the specimens exhibited, I inferred that he had much to learn.

(To be continued.)

### DIFFUSION OF FOCUS.

WILL you allow me a few words on a subject about which there seems to be some misapprehension in the minds of many photographers, namely, "Diffused Focus?"

Lack of "depth," and its attendant inconveniences, has hitherto been a great drawback to artistic freedom of effect in photographic portraiture.

In arranging a model for the simplest form of picture, a bust, how disagreeable the effect of the blurred outline of the further shoulder; and if the head is of any considerable size, India-ink must be used to identify cloud-like masses of hair, and the projecting end of the nose will need the same reconstruction, while eyes, cheeks, beard, &c., are all confessedly improved by the brush.

Where more of the figure is introduced, the evil is amplified, as the whole person must be brought, more or less perfectly, into one plane, thus gradually forcing us into a uniformity of position that practice demonstrates to best conform to the limitations under which we work.

In grouping—but why speak of the miseries we have all endured in trying to place twelve, eight, four, even two persons in pose, and have the attitudes unconscious of the camera?—the group *will* spread out into the inevitable curve, each member as nearly as possible equidistant from the lens.

This one thing, the impossibility of obtaining equal distinctness at unequal distances from the instrument probably does more than all others put together, to make photographs stiff, formal, heartless, and to produce those conventional peculiarities in sun-pictures, which render a photograph, of any kind, from life, or its engraved reproduction, recognizable as far as it is visible.

But without being prolix, in the consideration of our imperfect means, it is enough to say, that the evil has been both acknowledged and deplored by all reflecting artists; and the evil remains, even if habit has, in a measure, stultified our consciousness of its existence; and we pass on to ask, How it shall be removed, or at least so far removed, as to give us practically the necessary freedom?

A theoretical answer would be, "by constructing a lens which shall have equal foci for objects at different distances from itself." But theory again says, "this is impossible." Just here, however, is noticed a divergence between theory and practice, or, to speak more correctly, we see that some theories cannot be perfectly carried into practice (and that there might not accrue much advantage if they could be).

Theoretically, if the image of a point situated  $a$  feet from the camera, be accurately focussed, the image will appear as a point, and if the said point be removed to  $a$  feet and one inch, or one-hundredth part of an inch, plus or minus, its image will no longer appear as a point unless the camera undergo readjustment.

Practice, however, shows that if  $a$ , is, say 15 feet, the point or object can be removed two or three inches to or from the lens, and the image remain, to the naked eye at least, unchanged, the inference being that neither the eye is accurate enough to detect nor the instrument perfect enough to give a perfect image at any adjustment of focus.

We have all heard of instruments that would "reach clear round a head;" some have esteemed themselves the fortunate possessors of such instruments, and it may not have occurred to all that this effect of "reaching clear round," depended first on the eye not being able to distinguish very delicate shades of focus, and secondly, on the instrument not giving them to be detected.

It has been said, that the Voigtlander lenses were over-corrected for spherical aberration, meaning that they were so near an approximation to the theoretical curves of calculation, that they cut very sharp, but on one plane only, and have but little depth; and though we may justly hesitate to say, that the limited powers of man cannot produce anything too perfect, yet it is certain that the majority of operators have preferred instruments not furnished with the great accuracy that distinguishes the work of the above eminent firm; thus contributing another argument to the conclusion, that absolute accuracy, in all respects, is not best, necessary, desirable, or good,



even if attainable in a photographic portrait tube.

Considering, then, this *sharpness* in a few concise propositions, we find,

First. That the sharpness of our ordinary tubes is a kind of optical strait-jacket, working in which great freedom cannot be had.

Second. That the most perfectly curved tubes do not produce absolute sharpness.

Third. That absolute sharpness, if obtainable, could only be had on objects, or parts of an object, situated in one plane, parallel with the front of the lens, and consequently perfectly sharp pictures could only be produced of flat surfaces.

Fourth. That if obtained, the most practical eye could not distinguish absolute sharpness from its near approximation, so that any eye is fully satisfied by a relative sharpness.

These being conceded facts, it becomes a question, how far this lack of sharpness can be introduced, and the eye yet remain satisfied, as opticians can easily make lenses which by having no definite focus shall present objects on different planes with the same distinctness?

Here we have ground for disagreement. Photographers generally, with educated eyes, demand much sharper pictures than their customers, while it is well known that the best portrait painters constantly censure photographers for producing *too much sharpness*, and that some of the first photographers practise throwing the picture just a little out. Such photographs are severely criticized by the majority of photographers, but have been pronounced by persons of undoubted taste and high art education as not only good, but much better than some productions in the sharpness of which the operator has taken much pride, thus indicating to the candid mind, that there may be a vice in a virtue, obtruded to the exclusion of other and greater virtues. But, leaving it to each individual to decide what amount of sharpness may suit them, let us consider the methods whereby it has been proposed to overcome the evils of too little depth in the reach of our lenses.

Operators of means and in long skylight-rooms partially emancipate themselves by using instruments of long proportionate

focus, as 4-4 size for cartes-de-visite, mammoth for 4-4 plates, and the finest Imperials the writer has seen were made by an extra 4-4, with the smallest diaphragm inserted. Long and consequently uncertain exposures, for nervous people and children, are the evils of this method, and but few rooms have sufficient length to adopt it; nor is it more than a partial remedy, only efficacious when the size of the plate covered is very small to the scale of the tube.

M. Claudet was, some time ago, much ridiculed, by *sharp* photographers, for an ingenious plan he has described, by which the two combinations of the ordinary portrait tube being gradually made to approach each other during exposure, the plane of greatest sharpness moves through the whole subject, resting alternately on each part from front to rear, thus *diffusing the focus* evenly over the sitter.

This method would seem to require very heavy firm stands, steady nerves and nice judgment in the operator, but as lenses are not to be had mounted on this plan, the photographic public has not been afforded the necessary facilities for forming an enlightened opinion on its merits, though it is asserted that M. Claudet has himself produced some exquisite results.

Mr. J. H. Dallmeyer has recently invented a lens capable of giving any amount of diffusion, with its concomitant depth, that may be required.

The back combination varies from the old style in its curves, and the two lenses that compose it are mounted so that they can be brought near together or set apart, by turning a screw. When close together, they produce pictures on the old plan of one plane of sharpness; by separating them, the sharpness is lessened, and the focus diffused so that a series of objects situated between fifteen and eighteen feet from the camera can all be rendered equally well, with the full aperture and field of the lens.

The advantages of this instrument for posing and grouping must be obvious; in fact, it would seem that they do all a lens possibly could, as one can make the ordinary sharp picture, or adjust sharpness and diffusion to any amount.

The inclosed pictures will, Mr. Editor,

to your eyes, perhaps, explain the operation of the instrument. They were taken with the New Dallmeyer Patent, 3 B. size, made to cover plates  $6\frac{1}{2} \times 4\frac{1}{2}$  inches.

Two impressions, you notice, are on one plate of the same subject and same pose; the first was taken with the tube screwed up tight.

You will recognize the necessary defects of the ordinary method intensified by the accuracy of Dallmeyer's curves. The focus was aimed at the further eye and divides the head and bust into three sections; section first, *within the focus*, the whole front part of the person including near eye, nose, cheek, whiskers, and right shoulder, all more or less blurred; section two, *the plane of focus*, taking in the left eye, right ear, roots of hair on forehead, and whiskers underneath the right ear; section three, all parts of the figure beyond this plane, as the left shoulder and hair beyond the left eye. The instrument at this adjustment is so near an approximation to mathematical accuracy that it has no depth of any consequence.

After this exposure was made, the lenses were separated three turns of the screw, a distance of  $\frac{1}{2}$  of an inch. This shortened the equivalent focus and rendered a readjustment necessary. Then, after the same time of exposure, on developing, the *diffused* image has evidently received the most light, and is a trifle smaller than the other, while as to definition it has every way the advantage. Not only is there no perceptible point on which the focus rests, to the exclusion of the rest, but the whole picture would be pronounced perfectly sharp, even by quite critical judges, and the first impression is that the diffused image is much sharper than the other. And when we consider that this and the other pictures were all taken with the full opening in rather dull light in from eight to twelve seconds, some of them involving a range of over six feet from front to background, it is evident that there is a great advantage in the rapidity of working over tubes diaphragmed down, to say nothing of the softness which many claim for *diffusion*.

So now, Mr. Editor, we come to an idea of what diffused focus is and accomplishes.

It does not give a confused image with chaotic outlines, as many seem to think it does, but it gives freedom, it gives rapidity, it gives, perhaps, a higher excellence, and it gives an effect which cannot be imitated by any contrivance, however ingenious and praiseworthy, outside of a special lens.

Trusting that this hasty article and these imperfect illustrations may lead to further investigation and exposition of the method of diffused focus,

I remain your and the fraternity's

Very obedient servant,

W. J. BAKER.

BUFFALO, N. Y.

Mr. Baker's communication is very interesting, and the subject worthy of study. "Diffusion of focus" may have some advantages, but we do not think the results produced by Mr. Dallmeyer's new lens are equal to those we have seen by other lenses. In the specimens particularly alluded to by Mr. Baker, the effect is certainly very good, and the diffused picture is the sharpest, but the other does not seem to have been carefully focussed, or the subject moved. Some cabinet portraits accompanying them, while in many ways excellent and well managed, have one particular fault, *i. e.*, muddy-looking faces, that give one the idea that the negatives have been retouched by a nervous hand. This defect we find not only in Mr. Baker's specimens, but in others by the same kind of lens and by other artists. We may gain some points by the new lens, but they are at the sacrifice of others. We hope we shall hear from others on this subject, and desire that our *opinion* should by no means be considered as final.

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### The Trials of the Wife of an Amateur Photographer.

(Continued.)

It is more than a year, Mr. Editor, since I made mention of my trials as an amateur photographer's wife, but my long-continued silence is not to be interpreted as significant of any abatement of suffering. On the contrary, my griefs have grown with advancing days. Each month develops some new phase of annoyance, till now, as

the Earl of Chatham said in the House of Lords, or Mr. Benton in the United States Senate (I forget which), "Our sufferings is intolerable." As you kindly opened your columns on a former occasion to my complaints, perhaps you will allow me to renew my remonstrances and reiterate my griefs in this present number of the *Philadelphia Photographer*, whose fame, I find, is widespread and fast increasing, and whose pages therefore offer a noble opportunity of appeal to public sympathy. It is, I know, not yet decided that women shall vote, but I never heard that any one questioned their right to complain. If not so, still objectors may as well spare themselves the trouble of talking about the matter, for it will be a waste of words; *we will* complain till our wrongs are redressed. To return then, to my trials: not to the old ones enumerated in a former paper; do not suppose I am going to harp upon a string already struck, and still vibrating; no, Sir! I have a fresh grievance, "and this reminds me of a little story:" Two of my dear friends were travelling on the railroad from Philadelphia to Norristown by the side of that beautiful river, the Schuylkill, which supplies our city with drinking water mingled with dye-stuffs, when one of them espied a deceased cow lying in the water close to the shore, and called the attention of her companion to the unsavory circumstance. "Do look! there is a dead cow in the Schuylkill, and that is the water that we have to drink!" But the cars sped on, and the cow was forgotten. On returning, however, by the same railroad, the watching one again aroused her companion with an exclamation indicative of disgust: "See, Mary! see there on the shore!" "Oh, I do not want to see it," was the reply, "I have seen it already." "No, no, *this is another!*" So, Mr. Editor, of my present grievance, I say "this is another." And what is it? Well, I will try to tell you. For weeks I have been sweltering (that I think is the word by which to designate the condition of tarrying in the city during July and August, when the house is like an oven, the streets are like furnaces seven times heated, and the air is a compound solution of sulphuretted hydrogen, carburetted ditto,

sulphide of ammonium, concentrated essence of gutter and slop-pails, coal-gas, and decayed cabbage), for weeks, I say I had been melting amid this atmosphere with the thermometer among the nineties, when at last it was settled that we should go into the country. My soul revived at the thought, and an early day was fixed for our hegira. I shut my eyes and saw, by internal vision, the Blue Mountains leaning up against the lighter blue of the sky, the soft white mists moving along the higher ridges of the hills like ghosts that had reluctantly left the valleys and were looking for some spot where they might again find rest. The river lay like a dark mirror beneath, dotted with a few sails, repeating themselves in beautiful reflections in the glassy stream. I heard the shrill of the locust coming sharply over the river from the adjacent hills, the beat of the distant steamer, which sounded like a swift throb of life, and the soft sighing of the fitful breeze like a breath of life, and my spirit rejoiced. Suddenly my dream of bliss was broken by a sound: "My dear, I am afraid my new camera will not be home in time!" "Bless my heart," I answered, "is there any doubt about it?" My peace of mind was gone. Sure enough, the camera was not brought home in season, so my escape from the city was delayed vexatiously for days and days. At last the dreary, dismal camera came home! Ugly thing! It stared at me with its solitary eye in stony indifference, as if it meant to say "What are you fretting for? Am not I here now?" Yes, it was here now, and again my vision of country air and outdoor life returned. But again it was dissipated by a *voice*: "My dear, have you any room in your trunk for some of my traps?" "Certainly," I meekly answered, "if they are not too many or too large; my trunk is already nearly full."

I had occasion to go out for a while, and when I returned found the "*few traps*" destined for my trunk, distributed on the bed. *Distributed* did I say? Bless your heart they were *piled* there! two nitrate of silver baths, a bottle of developing solution, sundry bottles of intensifying solution, a graduated measure which was to serve during our journey as a drinking cup, five dozen glass plates which must lie flat, many glass



rods which must not be broken, an instantaneous drop, six lenses, *the camera* and holders, tent-cover (the tripods for camera and tent, I was expected to carry in my hand), a package of hypo, a package of cyanide, bottle of varnish, scales and weights, dippers, filtering-paper, focussing-glass, level, bottle of burning fluid, ditto of acetic acid, hydrometer, collodion (four bottles), two funnels, two dozen ferrotype-plates, a lamp for burning, cork-screw, screw-driver (belonging to my sewing machine by the way), and two negative-boxes, and lastly two bundles of tobacco! These were among the "few traps" which were to go in my already nearly full trunk, and be packed among my nice dresses, which I had selected with a special view to a splendid appearance among the fashionable population frequenting the neighborhood of our chosen field of operations. And then, my hat! a shiny white bonnet trimmed with the loveliest and most delicate white flowers. How in the world was I to get all these things safely packed and safely unpacked?

I had seen Signor Blitz unpack bonnets, four hat-stands, a bird-cage and bird, a large trunk full of coats and boots, and sundry other articles, from a tolerably sized portfolio, and, of course, I concluded that he must first have packed them there. But then I was not Signor Blitz, nor the possessor of his secret of stowage, still, I addressed myself to the task; I packed them after a fashion, and I unpacked them too, at the end of my journey. My dear Sir, I wish you could have seen my bonnet. It was put on the top of the camera. Of course, in transferring baggage from cars to boat, and boat to cars, it was often under the bottom, and I wish I had caused it to be photographed. It came out as if it had been in a hydraulic press, flat, sir, as a pancake; my beautiful flowers, like specimens taken out of a "herbarium," recalling that affecting image in Moore's song: "Oft in the stilly night," of "garlands dead!" And my dresses! my dear sir, did you know that glass-plates have the singular property of working through their paper wrapping, and with their sharp edges cutting dresses all to pieces? It is a fact, sir; a knife or scissors is not more trenchant in slitting up

silk and satins, cottons and linen-cambries. Fortunately, none of the bottles "burst" this time, but they have done so on former occasions; and my dresses were not "iodized," or "bromoized," or "nitrated," but were only perfumed to a point strongly suggestive of an apothecary shop or chemical laboratory. And then that blessed tent! You must know that it was a new one, of a new pattern, wonderfully light, and very convenient, my husband said. No joints to be screwed together, folding up easily, and very portable! I doubted the capabilities of the affair, and expressed my objections, but to no purpose. Before it was used in the open air, manifold alterations and additions had to be made; flounces were to be put on here, and tucks to be taken in there, all by my own poor weary fingers, with the thermometer at 90°. Fancy me seated on the floor with the huge black mass spread out in appearance like the skin of a whale, and, in odor, like the smell of twenty whales; planning and plotting, cutting and stitching, and all the while satisfied that it was labor in vain, and to no profit. And what was the end of it all? After infinite trouble and vexation and toil, the tent was fixed and packed, and forwarded, and at last set up in the open air. And what was the result? One exclamation of the gentleman using it, as he issued from the tent, dripping with perspiration, may suffice to explain: "*Confound that tent!*" Yes, so I say, confound that tent, and confound—But no, fate has ordained that my husband should be an amateur photographer, and I bow meekly to my destiny and seek relief for my trials only by rehearsing their history. Very tedious, however, is the task likely to become, for I see no end to repetitions of the annoyances already detailed, and no limit to the new aggravations which are likely to grow out of this delightful art.

For a few days I have had peace. For a few days I have had the melancholy pleasure in sitting under the shadow of great far-reaching trees, patiently waiting till I am wanted to fix and wash plates, carry pails of water, or form a point in the views, trying, meanwhile, to get back my beautiful white bonnet to its original shape, and my fair flowers to their primitive freshness

of appearance, and as I listen to the wash of the water on the river's bank, and the song of the cat-bird in the thick boughs over head, to glance occasionally at the black cone pitched on the lawn, "*that tent*" under whose odoriferous covering my husband is working, and see its folds bulge out, now here, now there, its light framework tottering as to its fall, and then hear, proceeding from its depths, the muffled groans: "*Confound this tent!*" and say softly to myself, "I knew it would be so."

All this is very pleasant, particularly the last-mentioned gratification of seeing my predictions verified, and my prophetic forecast fully vindicated. But alas! such a pleasure is short-lived, for when I look at that tent, I know that in a day or two it will have to be packed up again. Bottles, baths, dippers, plates, and the endless et ceteras are all to be replaced in my poor trunk among my poor dresses, to be unpacked at the next resting-spot. Indeed, Mr. Editor, as I hold my shiny white bonnet in my hand, I can feel a shudder run through its delicate frame, causing its flowers to vibrate and tremble sensibly, and I know it is from fear of the torture it is sure to suffer among those sharp, hard, smelly things by the side of that dreadful camera. And yet what can I do when that charming instrument cannot be persuaded to go into anything but my bonnet-box, and I have the pleasing alternative of either having it there or carrying it in my hand along with the tent-tripod? And what is to be the end of all these things? Mr. Zentmayer has invented a lens wonderfully cheap and wonderful for the sharpness and beauty of the negatives which it produces (as my own eyes can testify), and somebody has invented a new tent (bless it!), but what ingenious soul has thought or will think of inventing anything to protect dresses and preserve bonnets? I fear each new contrivance will only prove a new source of discomfort and aggravation of temper. But no matter, no one shall contrive a "*stop*" which will contract my vision of ills, and whatever extension of "*focus*" may be achieved, it shall not put my "*trials*" beyond the reach of an energetic remonstrance. Good-by.

Our amateur friends will excuse us for publishing this doleful epistle. The writer has often done us a good turn, and we cannot refuse to let her have her *say*—she would *say* it any how. Our columns are open to *all* the afflicted and troubled. But if our fair Mrs. Caudle will allow, we will, in few words, give her the specifications of our invention (not yet patented), (invented for the benefit of our "*trial*"-ed half), for protecting her dresses, bonnets, flowers, &c., and they are as follows: Let the husband have *the whole* of the trunk, and leave the bonnet, dresses, and flowers out altogether. We claim as our invention the method of using the trunk as described—in fact, we claim *the whole trunk*—or none. The plan works well—for the husband.—Ed.

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## PHOTOGRAPHIC SUMMARY.

BY M. CAREY LEA.

ENGLAND.

*Encaustic Paste.*—The application of substances of this nature has been highly recommended as adding to the permanency of the print, and at the same time giving a finer effect to it, by increasing the depth of the shadows without producing a gloss. A new interest has been created in this proceeding from the belief that Adam Salomon uses it in the finishing of his portraits, very generally considered the best at the Paris Exposition. The following formulæ are given by the *British Journal*: Mix white wax with rather more than an equal quantity of Venice turpentine, and dilute the mixture to a pasty consistency with spirits of turpentine. Apply with a soft flannel pad. A soft polish is imparted, and much detail previously invisible is brought out (presumably in the shadows, not the high lights). (We have used this for years.—Ed.)

Another formula directs to soften white wax and Ceylon elemi with portions of oil of lavender and mix, keeping the whole to the consistency of a firm pomade. First apply with the finger, rubbing in next with a merino pad. After a few minutes' standing, polish with a clean pad of same substance.

*Developers.*—It has been proposed lately

to modify the developer by adding *caramel* or burnt sugar, a substance which of itself has a slow reducing effect on solution of nitrate of silver. The editor of the *British Journal* remarks that when fifteen minims of caramel to the ounce of developer were added increased density was at once obtained, good half tone, and printing negatives without after-intensification. It is affirmed that caramel is sold by druggists under the name of "coloring."

The use of a small quantity of sulphate of copper has also been highly spoken of by the same journal. This addition to the developer was recommended some time back, but has not, according to these views, received the attention it merited.

*Dry Processes.*—The unsatisfactory nature of the dry processes in use is sufficiently evidenced by the incessant effort to find something that will meet the needs of the case. The *malt* processes have been receiving more attention lately. Cotman has made good pictures by immersing his sensitized plates for two minutes in water, and then flooding with beer (Allsop's table beer preferred), draining, and drying spontaneously. The beer should be fresh and clear.

To develop wash with common water; cover the plate with plain pyro, six grains to an ounce of water, pour off; add two drops of a thirty-grain solution of silver with ten grains citric acid to the ounce. When thoroughly out, wash and intensify carefully with more silver. (*Br. Jour.*)

An ingenious combination of the malt and albumen processes has been made by putting the white of an egg into a tumbler of ale (previously beating it up and letting it subside), then filtering and using as a preservative. This method is affirmed to give exceedingly soft pictures, and, with adequate exposure, certain absence of harshness of contrast.

#### FRANCE.

*Carbon Printing.*—The question of the cost and availability of carbon printing has been scrutinized pretty closely. And the result reached appears to be this: That when worked on a large scale, the entire cost of labor and materials amounts to about seven-eighths of that of silver printing;

so that, on the large scale, carbon prints can be produced at the same rate as silver prints.

This is a most important fact, and its confirmation may be seen in the circumstance that Braun, of Dornach, the purchaser of Swan's patent rights for France, has erected a steam engine to work the tissue with, and is now turning out carbon prints, stamped "*Procédé inaltérable*," in large quantities and of unsurpassed beauty.

On the small scale the carbon process, in its present form, can hardly take the place of silver; at least it has the great disadvantage that operators have thoroughly mastered the silver process by years of experience, and reluctantly turn to learn another. But there is no doubt that the public will learn to place a higher value on carbon prints. Photographic work is now received by the public with profound distrust, the origin of which any one can see in the worthless, faded work to be found in every collection. Those who practise the carbon work will doubtless take care to let the public understand the advantage of their process, and it will be appreciated.

It seems probable that it may be found an advantageous part of business to do carbon printing for the trade.

One advantage to those who take up this description of printing will have is, that if any simplification can be made to the Swan process, they will be familiar with the general manipulations, and be more in a position to adopt it. And if any simplification can be effected, it will immediately turn the scale against the silver method.

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### GERMAN CORRESPONDENCE.

BERLIN, August 1, 1867.

*Carbon Printing*—*Dr. Vogel's New Actinometer*—*Paris Exhibition*—*Pantascopic Apparatus*—*Appareil Dubroni*—*Chevallier's Apparatus*—*Darlot's Universal Lens*—*Opérateur Photographique*—*Carton Durci*—*English Cameras*—*Dallmeyer's Patent and Rectilinear Lens*—*Steinheil Lens*.

DEAR SIR: In the July number of the *Photographer*, which Journal I like better with every monthly perusal, and its con-



tents become more interesting and varied as it progresses, I notice that the relative advantages of carbon or silver printing form the theme of conversation. It is the same here, and the subject gains here in importance, as with us the process is not secured by letters-patent, and consequently the materials will soon be much cheaper here than in England or America.


Four weeks ago I introduced the process in the atelier of the Royal Academy, and I find it now so easy, sure and simple, that I give it the preference to silver printing. I have succeeded in constructing an actinometer which reduces the main difficulty of carbon printing to child's play. It is an instrument on which the degrees are read off like a thermometer. The negative is placed simultaneously with the instrument in the light, and left there until the instrument indicates a certain degree; this degree of printing has to be previously established by experiment. A strip of carbon paper is placed under the negative and exposed, and, gradually, as the instrument indicates four, six, or eight degrees, covered up. The strip is afterwards developed, and it is easy to see which degree of the actinometer corresponds with the best development. When the necessary degree of several negatives has once been ascertained, it becomes an easy matter to judge, by comparison, the necessary time for a new negative.

This instrument, will, I hope, facilitate the introduction of the carbon process. I have tried the same during very changeable weather, with the greatest success, while other photographers, owing to the weather, were complaining of over or under exposed prints. Many of the objections to carbon printing of Mr. Wenderoth must now appear unfounded. The only liability to accident which I have noticed, is the formation of blisters in developing, and this difficulty I have overcome by using a concentrated solution of caoutchouc of 5 per cent. India-rubber, as hydrocarbon varnish.

I must now resume my report on the Paris Exposition, and the present letter will be the concluding one. Among the innumerable variety of large and small, good and indifferent pictures, from every portion

of the globe, is a large amount of photographic apparatus and chemicals, which made the selection and distribution of prizes very difficult.

The pantascopic apparatus claimed the most attention as a novelty. I described the one of Johnson's construction last year; besides this one, there are a number of others by Brandon, Marteus, Koch, Schierly, &c.; the aim of all of them is to admit the use of objectives of different focus. The apparatus of Johnson is only applicable to one and the same lens; otherwise, all these instruments consist of a camera which turns around the optical centre of the lens while a long plate-holder turns in the opposite direction. So far, the Panorama apparatus has only been employed to a limited extent. The objection is, that straight lines in the margin of the picture are very much distorted; if, for instance, a house is taken, the cornice will be curved upward, while the base is curved

downward ; such pictures are, of course, useless in landscapes. Without architectural objects this fault is less striking, but nevertheless, the pictures are very often untrue; a narrow valley, for instance, will show wide masses of rock on either side with a narrow gorge in the centre; many of Braun's views, taken with this apparatus, show this defect; the apparatus is limited in its application, and has to be used with great care. The best on exhibition were made by Johnson and Brandon; those of Marteus and Koch were less solid and reliable.

A new apparatus for working in the open air, by Dubroni, attracted more attention from the general public than the rather difficult to understand pantascopic apparatus. This apparatus is advertised with illustrations in all the Parisian papers, and finds a ready sale as a toy for children of large or smaller growth. The price of the whole apparatus with all the accessories, is 40 francs. The pictures are half the card size.

The camera of this apparatus consists of a glass-tube of yellow glass; the front opening is for the object-glass, and the back is ground plain, and a piece of plate-glass can

be attached to it water-tight, by means of a spring. In using this apparatus a piece of ground-glass is attached to the back opening for the purpose of focussing; next, a piece of plate-glass is coated with collodion in the open air, and takes the place of the ground-glass; by means of a small India-rubber bag containing silvering solution, which communicates through a small hole with the interior of the tube, the plate is covered with silvering solution; after this the silvering solution, by means of suction, is returned to the bag; the plate is now exposed, and with another bag of similar arrangement, the plate is developed. The first picture generally succeeds, afterward the apparatus is contaminated, and the pictures are spotted and streaked. Besides the one just described, there are two other arrangements for taking pictures in the open air on exhibition; the one by Albiter, the other by Anthony; they were exhibited before in London in 1862, but they do not give satisfaction.

The aim of the French is very often to show some ingenious arrangement, no matter whether it is practically useful or not. As an instance in point, I mention the ingenious idea of Chevallier, "Un appareil pour levé des plans et au nirellement par la photographie, par Arthur Chevallier." This gentleman takes, with a very complicated apparatus, somewhat similar to the Panorama camera, views on a horizontal plate, and uses the prints for drawing maps and plans. Such a plan is on exhibition; the photograph after it is made, however, is so wanting in sharpness and so indistinct that it is impossible to draw a line from it, and other mathematical instruments must have done the best part of the work.

Of more interest are the universal objectives of Darlot; these consist of a system of from eight to ten lenses, which are sold in a kind of case like an opera-glass, and can be carried on an excursion in a leather sling over the shoulders. These lenses can be used in very different ways, either as single landscape lenses with a stop in front, or as double objectives, according to the different combinations of lenses. A portrait combination, or a lens which will copy or take

correct architectural or landscape views, is constructed in a few moments.

A system of nine lenses admits of eleven combinations as double objectives, in which the size of the picture varies from eight to twenty-seven centimetres.

Correctness of design and depth left nothing to desire; an objective of this kind will furnish a landscape photographer with all he needs; it is portable; the focus is easily changed; he can work with large or small stops or large or small field of view, and last, not least, the price is very low.

It is to be regretted that this useful instrument is lost in the confusion of useless apparatus in the French exhibition. As a sample of such useless apparatus, I mention the "Opturateur Electrique," by Geymet and Alker. Imagine a camera, with stand and two electro-magnets, a pendulum, and a galvanic battery, and all this for what? to open and shut an internal shutter by electricity.

Dufournet & Co. exhibit a line of useful instruments; this firm manufactures dishes, funnels, bath, &c., out of a black composition called "Carton durci." I have used these dishes for a number of years for holding fixing solutions for washing prints, &c.; they are very light and durable for silver solution. I cannot recommend them, as, in course of time, the silver will react on the rosin which forms part of the composition.

The large number of other photographic apparatus are of little interest. The French manufacturers cannot stand the comparison with the really elegant, substantial and exact workmanship of the English manufacturers.

The cameras of Meagher, Dallmeyer, and Ross, are really masterpieces of elegance, combined with strength and durability. Many of the French cameras look as if they were made out of cigar-boxes.

In the English department, the new optical apparatus is of most interest. Ross exhibits a large number of his doublet lenses, with some very handsome specimens of work. Dallmeyer has specimens of all his new lenses; particularly interesting is his new patent portrait lens with changeable back lens. I have lately had occasion to try several of these, and the result has sur-

prised me. With a portrait lens of 4-inch diameter, I was enabled to take a portrait, whole figure, of 13 inches in height, sharp and correct in all its parts. A lens which will take a picture twice the size of its diameter is a good one, and this one was three times the diameter; the quantity of light, as well as the flatness of field, are surprising. The moving of the back lens, in order to obtain depth of focus, did not have the desired effect. Dallmeyer's new patent rectilinear lens was also on exhibition. I have not tried this lens, but the samples are very promising; it consists of a large strongly curved front lens, and a smaller, less curved back lens; both are achromatic, and between them is a diaphragm; the angle of the lens is more than 90 degrees, and the ghost, which is a frequent trouble with wide-angle lenses, is entirely avoided.

Another new lens, which is not so well known as the former, is by Steinheil, in Munich. Steinheil is the well-known inventor of the "Periscop," the first lens of an angle of 90 degrees. This lens, being non-achromatic, did not succeed. The new lens consists of two symmetrical systems of achromatic lenses of small curvature, with central stop. It draws perfectly correct, can be used for portraits with the full opening, and for landscapes and reproductions with the stop, in which latter case it shows a field of view of more than 60 degrees.

The work which Hanfstengel, in Munich, has done with this lens is really astonishing.

Of American lenses I have spoken in a former article.

Yours, very truly,

DR. H. VOGEL.

## VOICES FROM THE CRAFT.

### *Lenses for Stereographs.*

EDITOR PHILADELPHIA PHOTOGRAPHER:

NOTICING, from time to time, in the *Photographer*, that many of your readers living in the vicinity where fine scenery abounds, are turning their attention to making (to me) the gem of all small pictures, the stereograph, and that they are encouraged in the same by you, perhaps, a few words on

what lenses to use may not be out of place, although the information to the majority I know is old. I would, therefore, state that after much experience in the use of the Globe, the Dallmeyer double and single view lenses, I am convinced that for general outdoor views, none can excel the best quality of single view lenses, even for architectural work, when in not too crowded a situation. Most of my Chicago views are made with the Dallmeyer quick-acting single view lenses, of four and a half inch focus, both instantaneous, and longer exposure, and I greatly prefer the work done by them, to that by the three-inch Globe lenses, the angle included being very nearly the same, and, to my mind, the perspective and atmospheric effect much more perfect and natural to the eye, when viewed in the stereoscope. With the front lens of the Dallmeyer stereoscope of six inch focus I have not been able to obtain the same excellence of definition, as with the four and a half inch focus lens before spoken of. I was, therefore, desirous of obtaining a strictly first-class single view lens of about six inch focus. An opportunity recently offered itself to test the respective merits of a lens (single view) of American manufacture, with that of the celebrated London maker, and to myself the result was most gratifying. A short time since the directors of the Chicago and Northwestern Railroad, with their friends, made an excursion to the iron mines of Lake Superior, and desiring me to accompany them I did so, and inclose you a set of the views taken; the numbers having the letters D or W affixed, signify the view to be taken with the Dallmeyer four and a half inch lens, and the six inch single view lens of the Willard Manufacturing Company, 684 Broadway, New York. The work will speak for itself, and I should like your readers to have your opinion on it. The lenses (Willard's) I used were not picked out specially for trial, but were one of two pairs in the hands of a stockdealer here. So pleased am I with their working that I have had the makers fit me a pair of six inch focus, and a pair of seven and a half inch focus for very distant objects, into a mounting with movable diaphragm, after a



description I gave them, and in which I can now use three sets of lenses of different foci, viz.: the Dallmeyer four and a half single view, and the Willard six and seven and a half inch, ditto.

JOHN CARBUTT.

CHICAGO, ILL., August, 1867.

What Mr. Carbutt says in reference to the Dallmeyer lenses is the same as we in our experience have found to be the case. We could desire nothing better than the "No. 1," or four and a half inch focus lens of Mr. Dallmeyer, but trials with those of longer focus show a falling off. We have carefully compared the views numbered by Mr. Carbutt in his list (see notice of them in our last issue), and for long distances the Willard lens is most admirable without a doubt. The perspective is true and correct, and the definition all that could be desired. Those who have a curiosity to compare can order Nos. 284 (Dallmeyer), and 265, 266, 283 and 285 (Willard) of the stereographs mentioned above.

ED.

How I WAS SOLD.—ON seeing the announcement of the Mezzotint Printing Process, patented by Mr. Carl Meinert, I wrote him desiring samples, terms, &c.; both of which were duly received.

I was pleased with the effect produced, and congratulated him upon the discovery of what I thought was a new principle, and wished him all success in the sale of it.

Two or three letters passed between us in reference to terms, and I finally remitted him \$25 for a license to practise his discovery, which, as yet, I knew nothing of more than I had got from the journals, and by which I was somewhat misled.

I recognized in the effect a similar one to what I had produced by a means quite impracticable for regular work; but, from his representations of the great simplicity and successful working of it, and as he had secured a patent on it, I had no idea of its being the thing I had tried and discarded years ago as impracticable, until I saw his specification in *Humphrey's Journal* of July 15th.

The cat having emerged from the bag, I make my bow before my co-workers, as a

party "disposed of" in the modest sum of \$25.

The license sent me was No. 9; I would like to shake hands with the eight who preceded me, and all who may have followed. I think we are—myself particularly—pretty bright fellows.

I have been in the business only twenty years, and do not wish to be laughed at for buying information I could have given anybody seven years ago. After a reasonable experience I shall know better.

Mr. Meinert says he commenced his experiments last winter. I have, hanging in my show-room, three portraits *printed by his method, which bear date of copyright, 1861*. They are part of a collection of portraits of the survivors of the battle of Lake Erie, under Commodore Perry.

All photographers who care to try the mezzotint printing, have my full permission to do so, free of charge.

If Mr. Meinert wishes to prosecute, the portraits referred to are at his service, to prove him six years too late with his "discovery."

By his method of printing, under favorable conditions, more work will be spoiled than successfully done.

It can be done only in direct sunlight. Vignettes cannot be printed by it. The license sent me was immediately returned (I dislike being lumbered with valuable papers), and when it pleases me to fuss with mezzotint printing, I shall so amuse myself. If Mr. Meinert has a taste for prosecuting, he is respectfully invited to commence with me.

Yours, truly,

J. F. RYDER,

Cleveland, O.

P. S. (confidential.) I am about obtaining letters-patent for an improvement on the game of "*Mumble-the-peg*," which has formerly been done with a jack-knife. My improvement consists in substituting a fork!

GAGE'S PATENT.—In 1854 I was making Daguerreotypes in Raymond, Mississippi. An individual, whose name I can give, called upon me, and offered to instruct me how to detect counterfeit notes and how to

take children quickly, for \$5. I "bit," and the following was his process for the latter accomplishment: Expose the plate in the camera a few seconds to a black velvet background. As mine was a swinging one, I used it that way, and before exposing the plate to the sitter. If this is not the same thing that Mr. Gage has a patent for, I am much mistaken.

E. V. SEUTTED.

I SEE by your last number of the *Photographer*, that Mr. F. B. Gage's GREAT INVENTION of *development by diffused light*, is nothing more than an old dodge that I have made use of for seven years, and have abandoned for a much better plan, to effect the same thing, and upon which there is no patent now, but there is no certainty but that some *inventive genius* may reinvent it and obtain a patent.

I proceed as follows: After exposure and before placing the cap over the lens, I hold close in front a sheet of *yellow or red glass*, or what answers as well, the *ground-glass*. Sometimes I draw the plate-holder from the camera, lay upon it the colored or ground-glass, and again draw the slide and expose the plate to diffused light.

Either plan is superior to the *old one* of using black or colored velvet; for invigorating and softening a negative, nothing can excel it.

In conversation with my friend, Professor Towler, yesterday, he informed me that he published, some years ago, *my old* and Mr. Gage's *new* plan of using the cloth or velvet.

My former method was as follows: I had, say three quarters of a yard of red, black, or yellow velvet, which I used for the purpose of covering the tube (instead of using the cap); when the exposure was to be made, I lifted off the velvet from the tube, and when sufficient time had been given, I raised the velvet by two corners, and held it in front of the tube from one to three feet off, waving and shaking it, being careful not to let any other but the diffused light pass in the tube; the effect of which was to invigorate and soften (all else being equal), the resulting negative.

If this is all of Mr. Gage's claim, he is not entitled to a patent. Is he?

Why, my dear sir, I find, in *every number of the Photographer*, a dozen things far more worthy of a patent. I never made any secret of it, nor conceived or thought that I had made any *very* great discovery or invention, and you may conceive my astonishment and surprise, when I found that Mr. Gage's great invention, of *development by diffused light*, was simply my old dodge of "scaring the bull" (as the boys sometimes called it).

I have some other dodges I will send you, for the benefit of the craft, or perhaps some inventive genius will be getting them patented. *So as to be sure of having the privilege of using them myself, I ought to publish them.*

I am your obedient servant,

J. M. LETTS.

DUNDEE, YATES Co., N. Y.

Mr. Letts's final resolution is a grand one. If photographers would liberally make known their little useful "dodges" and wrinkles through the journals, instead of selfishly keeping them to themselves, they would prevent others, who are just as smart and just as selfish (but more wide-awake than they are), from inflicting the whole craft with annoying patent claims, and also have the consolation of knowing that they have *given* some information valuable to all. If we were all to exercise such a miserly spirit there would be little progress.

Ed.

OUR LAST PICTURE.—*Mr. Editor:* In looking at your beautiful picture in the August number, it seems to me a profitable study to find out the secret of its charm. The picture of the figure, while very fine, is not, perhaps, any better than others you have published. Nor is there any wonderful arrangement or selections of accessories; but for all that every one that sees it exclaims, "What a beautiful picture!"

In the days when portraits were painted by the skill of the artist alone there was seldom anything but the figure introduced into the picture, and the same idea has been followed since the discovery by Da-

guerre. Indeed there have been so many new methods of working in this art, and so many uses to which it is applied, that operators have had as much as they could do to keep up with the changes so constantly occurring. But it is to be hoped that we shall now be able to work out improvements, not only in posing, but also in surroundings, that shall convey a better idea of the person whose picture is made. Without doubt the charm and fascination of your picture is that Miss Gracie's occupation, her position, and the accessories, are all in harmony. The careless attitude agrees with the flowers and leaves in her lap and on the floor, and the grasses and vases seem naturally to belong there. She seems to have unconsciously paused a moment in the arrangement of her flowers, and we see her in the picture exactly as she has been seen many times before. There is nothing strained; nothing for effect; yet the mind is satisfied, and the feelings it calls up are wholly pleasurable. Yet it would be a great mistake to suppose the same surroundings and position would suit a middle-aged man or woman. What graceful positions children will take while playing with their blocks and dolls on the floor! and what beautiful (because natural) pictures they would make if they could be taken in that way! The aim should be then to have the accessories and position and occupation all agree with the subject. It would require an artist to select and arrange these even if all that was necessary could be had when wanted. But every photographer cannot have these surroundings. Now, why cannot a series of paper negatives be made of articles arranged for different ages, classes, and occupations, leaving say from one-third to two-thirds of the negatives for the subject. The position could then be made to correspond with the accessories in the paper negative, and both be printed at the same time, and by this means a large variety of surroundings could be had at a very small expense, and new ones readily obtained. How much would be added to the attractiveness of the pictures our photographers could offer to the public! Anything that increases the facility or lessens the expense of pictures is a benefit to every one in the trade; and will not our

amateurs and others see if something practical cannot be made in this direction?

W. D. G.

CINCINNATI, August, 1867.

Correspondents, please bear with us. We are unavoidably obliged to lay over several "Voices" until our next, for want of space.

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### OUR PICTURE.

It was our intention to present our readers this month with a specimen from Dry Plate Negatives by our obliging friend, C. W. Hull, Esq., but owing to an unfortunate accident to three of our negatives, we are unable to do so until some future time, part of the large number required only being printed. Having no reserve, we telegraphed to Mr. Kent to help us, and with his customary generosity, he undertook the task, and has made negatives and prints since the 12th inst. We think this is the quickest time on record, and owe him many thanks. The pictures are accompanied by the following interesting remarks:

"The picture I make for you, Brother Photographers, goes to you with some apologies. That there are faults in it you will all readily discover; but you will understand that it is somewhat difficult to make so large a number of prints as is required for the journal, and have them *all* even passably good. While the most of those I send out are well printed and of good tone, I fear some will be defective in these respects, and will be likely to fall into the hands of those who will be severely critical. I can only say, be as lenient as possible, and remember, when you observe any defects in printing or toning, that it may be incident to the haste with which they have been gotten up, and that they may not be exactly my idea of perfection.

"The light in which the negatives were made is a good one. The instrument, one of Mr. Usener's manufacture, has no superior; while the subjects did patiently and well their part towards making a *handsome picture* (the thermometer standing at 94° in my room, when the negatives were made); so that, whatever faults there may



be in the negatives are my own, and with the excuse that the time was short.

"As I said, some of you, my good friends, may get bad pictures; I only wish every one of you might get the best one, and that you will discover in it something that will be of use to you in making this new size.

"And if you, Mr. Editor, will allow me, I will just say to our brother artists who have not tried the cabinet portraits, do not fail to do so at once; and make it a *success*.

"True, it will cost you something to start with, but it will pay in the end. And do not work with a poor lens or bad light if you can possibly avoid them. A good cabinet portrait with accessories, I think, cannot be made with an ordinary whole-sized camera, without making your subject sit a distressing length of time with the small diaphragm. If you have not a larger instrument, I would advise you to get one; you cannot afford to use a second-class tube.

"You must also have a faultless background, and have it of a color that will keep up the aerial perspective. A neutral color is much better than a positive one. And do not use too much light. A little ju-

diciously used is better than a good deal badly managed. Light your *sitter* and not your *room*.

"A word in regard to paper. While there are many excellent papers in market,—and I am under much obligation to different manufacturers,—I must recommend that manufactured by William D. Hovey, of Rochester, N. Y., upon which the prints for this number of the *Photographer* are made, as being very excellent.

"I have been able to produce better results with it than with any other I have ever tried. I have no doubt Mr. H. would be glad to send samples to those who may desire to try it. Truly yours,

"J. H. KENT."

We need offer no apology for substituting this picture for another, or comment upon its merits. It will give our readers an excellent lesson in *grouping* to study, which is the object of our picture. We should like to add to these remarks, but want of space forbids. We will gladly give any one a commission to print for us who can do as well, or better. Send proofs and proposals to us.

## Editor's Table.

In a late number of our Journal we made the assertion that a New York contemporary (*Humphrey's Journal*), was using our matter without credit. This was met with a denial by the publisher, and sundry angry squibs have since been fired at our head, averaging one at least in each subsequent issue of his Journal, to the present writing. His personalities are unworthy of any one who pretends to be dignified, therefore we shall not notice them further, but at his request, proceed to "prove" the correctness of our assertions. Nothing is so unpleasant to us as newspaper quarrels, and heretofore we have avoided them; but when a contemporary uses matter which we pay for, and which belongs to us, without giving us credit, and then denies it when charged with it, we must make our protest and abide the consequences. Without going further back we would state that, in Nos. 3, 4, 7, and 8 of his present volume, we find *verbatim* articles contributed to our columns by Mr. M. Carey Lea, without credit to us, but credited to

a contemporary abroad for whom Mr. Lea, by special arrangement between us, writes occasional articles to be published in England in our contemporary there at the same time they are published by us here. Now, if this is not using our property, we withdraw the assertion and allow our "oldest, cheapest, and best" contemporary to continue. In addition to this, Mr. Lea's articles being rather long, he divides them and publishes the first part *without credit to any one*, artfully giving the impression for two weeks or more that the articles were contributed to his pages. In the very number (issue for August 15) of his Journal in which he indulges in very violent, but harmless personal pyrotechnics, he copies one of our articles *verbatim* and without credit to us. This causes us no loss, for he is generally six weeks behind us, but we like to see the common courtesies that are due from one contemporary to another, acknowledged. If these are "unblushing falsehoods," as he sees best to term them, we beg him to prove them so to be

We know our own business best, but thank him for his suggestions. We are quite willing that our subscribers should compare our "yellow-covered literature," as he calls our Journal, with the pale, white sheet published by him, and take that which is "cheapest and best" in their own opinion.

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 PORTRAITS BY MONS. CH. REUTLINGER.—Our readers have frequently heard of Mons. Reutlinger in Paris, through our friend, Dr. Vogel. We have been favored by M. Reutlinger with a number of specimens of carte and cabinet size which are truly very beautiful. The latter are of Adalina Patti, Mlle. G. Oliver, Fisher, and Keller, in various dresses and positions, all of whom are elegant subjects and well managed. We shall not compare them with our American work, for they are both excellent. We do not agree in some cases with M. Reutlinger's method of lighting, which is sometimes too much from the top, but at the same time, the effects he secures are fine. Each part of the picture gives evidence of artistic taste and skill, and it is not to be wondered that M. Reutlinger carried away the prize at the World's Fair in London, in 1855, and received a large silver medal at the Paris Exposition in 1867.

We shall endeavor to make arrangements by which our readers shall each have a specimen of M. Reutlinger's exquisite work in a few months.

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 THE CABINET PORTRAIT.—"Is the cabinet portrait a success?" This question is often asked us, and we always answer in the affirmative. So long as it continues to spur up our lazy brethren, and makes them strive to improve, it is a success. Moreover, it is growing to be a *commercial* success. It has brought out the latent talent of our artists in such wonderful profusion and perfection, that photography will "awake out of sleep" again, and constantly grow more and more popular. We have received some elegant specimens during the month, from the gentlemen so well known by their work to our readers, Messrs. G. H. Fenimore and J. H. Kent, than which nothing can be much better. Messrs. Ranger & Elton, Palmyra, New York, also favor us with specimens that are very creditable to them. It is very evident that they take great pains to make good work, and they succeed admirably. Their subjects are well managed, the posing and lighting are good, and the manipulations ditto. In their letter to us, they say: "We are very much pleased with your views on the subject of the cabinet portrait, and fully indorse them." Mr.

H. L. Bingham, Kalamazoo, Michigan, also sends a specimen of what he can do with the new size. Both the subject and the picture are very pretty, and the accessories are well managed. Mr. Bingham is improving greatly. What a joy it would be if *all* would take so much pains. Success stands ready to meet them if they will only try. Messrs. C. W. Garrett, West Chester, Pennsylvania, and W. R. Gelderd, Port Chester, New York, also favor us with specimens, good in many ways, but not up to the mark. They will reach it, however, for they are *trying*. There is a surprising improvement in the specimens of work now sent us, compared with that of a year ago, and it is all owing to the zeal and enterprise with which the new size has been taken hold of. *Go on* with the good work.

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 ALABASTER PAPER.—We have been making a number of experiments, recently, with alabaster paper. After much careful trial, which caused some delay in getting it into market, the manufacturers now think they are producing a *perfect photograph paper*. The most rich and varied tones can be produced upon it; the softest, yet most brilliant effects secured by its use; the most artistic results, exquisite detail, and half tones; and its hard, insoluble surface makes it unequalled for coloring upon. For solar printing it will surpass anything ever before produced. It is already salted, and is easy to work. In our May issue, we presented our readers with a specimen print upon it, and directions how to use it were given in the same number. In addition to its other advantages, prints upon it are more permanent than upon albumen paper. We shall soon present another specimen upon it.

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 LA LUMIERE, one of our French contemporaries, ceased with the June issue. We are very sorry, but hope M. Gaudin will not discontinue writing on photographic matters.

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 THE name of the obliging young lady whose picture graced our last number, is Miss Gracie Curtis and not Calvert, as we understood it. We beg pardon for the error.

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 PARTIES who have communications for our pages, would confer a great favor by sending them as *early* in the month as possible. We are always crowded for space, and do not like to crowd out valuable matter that ought to go in, though this is sometimes necessary when it comes late.







Boston Public Library.

T H E

# Philadelphia Photographer.

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## EDITORIAL CORRESPONDENCE.

MONTREAL, September 5, 1867.

So much have I been your devoted servant during the past four years, my dear Journal, that I learned to feel that it was almost impossible for me to leave you and your host of correspondents more than two or three days at a time; but, you observe, my imperious master, that I have stolen away from you, and I might as well tell you that I am going to *stay* away just as long as I can do so without permitting you or yours to suffer. Moreover, I am going to write to you and tell you what a nice time I have had, and how nice it is to be where I need not be constantly worried by the fluttering of your wings and the screeching demands of your lovely voice, whenever a correspondent ruffles your feathers and your temper, or demands a little of your crowded space. Yes, I am free! I had almost resolved not to touch a pen during my absence, in order that I might be *entirely free* and *at rest*, but the love I bear you, and the fear I have that you may fly away from me altogether (or your subscribers, if I neglect them), prompts me to give a little account of myself. (Aside to your subscribers, though, I may say in self-defence, that I prepared the September issue for them before I left you.)

Leaving your and our city one cloudy morning, I arrived in New York, that

wicked city where they run down prices and fail to support their good photographic journals as they should.

On the recommendation of our esteemed New York correspondent, a trip up the Hudson to Albany was arranged for the next day, and I can fully indorse his report, not only as to the beauties of this glorious river, but of the abundance of food for the camera along its entire length. There is no river like it in this country. The following day found us at Trenton Falls, where the milk and honey for the camera is overflowing. A more delightfully *enjoyable* spot can scarcely be imagined. I have never seen one where I wished more for my camera and a few good plates. Such a variety of scenery and so much of it is seldom met with. If one likes to photograph waterfalls, and rapids, and glens, and rocks, here is the place of places. We have Niagara, Passaic, Minnehaha, and Montmorenci in miniature, and Trenton Falls, the high, in addition. And what is better, although they are all from fifty to one hundred feet below the ground level, they are, at certain times of the day, well lighted and easy to take. Mr. Jno. R. Moore, the son of the owner of the property, is located here, and is a photographer of considerable merit, being one of the pupils of our friend, Mr. Hull. He has one of the best furnished, best arranged, and cleanest places that it

has been my pleasure to see. He is only busy during the visiting season, and when the weather will permit uses the balance of his time in making pictures of the Falls, whose music roar may be heard while sitting for your picture in his glass-room.

Reluctantly leaving there, after a sojourn of two days, and three visits to the entire length of the falls, we proceeded on our journey.

At Albany, Utica, and sundry other places, I called and took mental notes, generally *incognito*; but where I have made myself known, my dear Journal, among those who see you monthly, I must thankfully say that I have always met with a hearty shake-hand and kind words for you. You are much thought of, and therefore I owe all the kindness shown to me to you. May you continue to meet the approval of your subscribers, and do them good, and let this convey to such as met me with so much kindness, my hearty thanks. May you and I, hereafter, be more worthy of them. If I neglected to call upon any, it was from want of time more than from want of inclination. Nothing would give me more pleasure than to take a whole year and visit all your subscribers and friends; heartily shake both their hands, and have a little chat with them. The desire to see some of those who are making good work caused me to leave you, and I have not called at any single establishment without gaining some information that some day or other will be valuable to some of your subscribers. I store all this up for future use.

On my way to Niagara I stopped at Brockport, which is only sixty miles east of Niagara. I felt a natural curiosity to see our kind friend Mr. Kent, and had a most pleasant day with him, which I shall long remember. He is not only a good artist but a kind and hospitable man, as all who know him can testify. Being in rather an obscure place, he was not conscious that he was making as good work as the pictures in your last two numbers testify that he is, and they are by no means his best efforts. He had all sorts of trouble with the September picture. The weather being warm and the

subjects nervous, he was compelled to make over forty negatives. These made, the paper became afflicted with the "*summer complaint*," and over five hundred prints had to be thrown into the waste basket; and yet, with all these troubles, he printed the large number required and mounted them inside of two weeks from the time we telegraphed him to do it for us. Let us all thank him, for he deserves it. He promises to make "something good" for us after awhile. He works an inclined north top-light altogether, and is much crowded for space, but being an educated artist he manages to produce excellent work even with the cramped facilities at present under his control. His negatives are "just elegant," to use the words of another, and yet he is never satisfied that his work is *good enough*. This is the right spirit, dear reader. Never settle down to the conviction that because you are "an old daguerreotypist, and have been at the business twenty years," that your work is "good enough, and nobody can beat it," as we so often hear you say. Mr. Kent has been photographing less than three years, and by care and attention (excuse me if I say it, but it is with the desire that you may be persuaded to do better), he succeeds in securing better results than I fear nine-tenths of you do.

From Brockport I proceeded to Niagara Falls, where I sojourned for about a day and a half. I am not going to attempt to describe them to you. Photography can do it better, but even its wondrous power fails to do justice to the subject. My first day there was spent in silent wondering and looking. The subdued yet mighty roar; the mighty yet beautiful rapids; the fearful yet grand and lofty tumbling of the waters; the dancing, frantic, fighting spray, and the lovely rainbow, all tend to humiliate one and impress him with his own utter nothingness and the wondrous power of the Great Creator. The feeling must be experienced to be realized. I cannot describe it. I will not try. There is but one Niagara. I was over it and under it and all around it, and when attempting the "Cave of the Winds," I at one time almost thought you would have to get another editor. The wind and spray and wa-



ter were almost too much, but thanks to His protecting care, I am safe. I have only one or two things to say to those who go there. Make a bargain with your hack-driver for the whole day before you start, and beat him down. Don't go to the "Devil's hole." It won't pay for the time. Don't pay a dollar to go under the falls and for a guide on the Canada side. The guide and the oil-cloth suit they urge upon you are needless. Go down without them. Five or six feet are all you can go under, and you need no guide to take you. Go under on the Goat Island side, and into the Cave of the Winds—if you can. You will be pleased if you can see. The best place to get an idea of the magnificence, grandeur, and awful height of the Falls, is to go down the inclined plane on the American side and climb up the rocks at the side of the falls. The grandest view of the rapids is to be had from the shore, a few rods below the Suspension Bridge. When you go, make up your mind to stay a week; for the more you look the more you are able to comprehend this great wonder of the world. Photographers there are as thick as bees, and assail you on all sides to have your picture taken with your Sancho Panza and your skinny, sleepy Rozinantes, with the Falls in the background. They keep all the *good* pictures they make to show, and some of them are very fair. Cameras are stuck all around, and I am glad to say quite a business is done. Charles Bierstadt has been here all summer, and has obtained some most charming effects, which you will find noticed elsewhere. He is about to make a series of panoramic views of the Falls, with a Busch panoramic apparatus, which will be very interesting. Some glass slides of moonlight effects by Mr. Bierstadt are exquisite. These are only secured after many trials. Mr. Bierstadt went with horse and wagon some miles *twenty-four times for one view* he desired to secure before he accomplished it. He will probably spend the winter here, and secure a most invaluable series of negatives. Alas! that my time compelled me to leave so soon, or I should have enjoyed a day's photographing with him.

Montreal was my next destination, *via*

Lewiston, Lake Ontario, and down the St. Lawrence. This is pleasant if you are in no hurry and like sailing. I was attracted by grand tales of the "Thousand Islands," and the "rapids" of the St. Lawrence. The former are tame to one who has sailed up the Mississippi, some of them being mere rocks hardly large enough to stand upon. The latter are tame to one who has rocked on old ocean, and only novel because they occur where one naturally looks for smooth water, and they are soon over. My advice is, save the time to spend in Montreal and go by rail. Montreal is a very pretty city, and reminds one of our Western cities. Its cathedrals and nunneries are well worth visiting, and its drives are pleasant. Photography is by no means asleep here. Mr. William Notman's name, and his excellent work, are so well known to your readers, that I need hardly mention them. His studios have been described in your pages, and after I return I will give you and your readers the benefit of a few little wrinkles I saw there. I was most hospitably received by Mr. Notman, as I feel assured all will be who call upon him. He has a magnificent and well-regulated establishment, and employs nearly forty people constantly. While there I had the pleasure of seeing him make one of his composition pictures for which he is so famous. It was a group of Highlanders around their camp-fire, and magnesium was called in to make the fire and the picture. It was very successful and life-like. Mr. Notman is a true artist, and I hope I have persuaded him to send you a paper occasionally. I gained much information from him, all of which you shall have some time. Excellent work is also made here by Messrs. Henderson, Inglis, and others, each of whom are always anxious to improve. I wish I had time to call upon them all. Yesterday I spent in Quebec, that old, dirty, curious, crowded, interesting city of convents, stone-walls, chain-gates and photographers. Messrs. Ellison & Co., and McCorkingdale, lead there, though I think there are other meritorious artists, whom I had no time to see. Montmorenci Falls and the citadel are the principal attractions about Quebec, and you

should by all means go there if you go to Montreal. I would like to tell you more, but I fear I have already tired you, for you know I agreed not to bother you while I was away. One thought, and I close. What a grand thing photography is for the tourist, who travels so fast, and sees so much in so little time. He can buy stereos everywhere of the places of interest, take them home, and repeat his trips, time and again, and always have them fresh in his memory. Now, my good master, good-bye. I will come back to you soon. Meantime, save me from correspondents who may scold me for delaying a response to them.

Truly, yours,

E. L. W.

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### SOME REMARKS ON PRESSURE FRAMES.

BY M. CAREY LEA.

MY attention has been strongly drawn, of late, to the great difference in sharpness of photographic positives. I think we must all have noticed that even experienced photographers, will occasionally produce work that will not bear criticism in this respect, whereas others seem to have a special talent for producing work in which the minutest details are brought out with an unvarying clearness that leaves nothing to be desired. Wilson's stereographic slides may be cited as an instance of distinguished success in this respect. There is one of these representing the monument to Burns, in Edinburgh, in which an iron railing at a considerable distance off from the point from which the view was taken, is represented with an accuracy of definition truly marvellous, although so reduced in the print as to be scarcely visible. The same may be said of the cordage in some of his views of distant ships.

So much has been said of accurate focussing with the aid of the microscope, and of accurate adjustment of the slides, so that the sensitive plate may occupy precisely the same position as the focussing surface, that no one who strives to perfect his work can fail to have had his attention repeatedly called to these points. It seemed then

more desirable to investigate with some attention the subject of pressure frames, and to see how far the different forms in common use, really fulfil the objects required of them, namely, sufficiency and uniformity of pressure.

In examining particular frames, it soon became evident to me that the amount of force required to adjust the back into its place, was no criterion of the pressure exerted against the glass. It might, indeed, be so if we were judging only of the increase of pressure caused by increasing the amount of packing in any particular frame. But in different frames, even of the same pattern, the springs act differently, and still more so in frames of different patterns. A much more effectual way of arriving at a correct judgment was found to be the following: Grasping the frame, after the back has been fastened on, with both hands, place the fingers against the back, and the two thumbs against the negative. Now press with the thumbs against the glass until it is forced back out of its place, by the springs yielding with the pressure. The distance to which the glass can be thus forced back, and the amount of force necessary to do it, form criteria which will enable us to distinguish with sufficient accuracy between the actions of various sorts of springs and frames.

It became very soon evident to me that the pressure was in many cases very unequally distributed over the face of the negative. The following was found to be a convenient mode of examining the working of any particular frame.

In place of setting a single negative or plate in the frame, set in parallel strips, so arranged that the length of the strips shall run crosswise with the length of the springs. Putting the thumbs on the extremities of any one strip, and the fingers against the back in the manner already described, force it back several times, observing the amount of pressure necessary. Let this be repeated with other strips in different parts of the frame, and the observer will be surprised (at least with certain sorts of frames), to note the great difference of pressure which will be found to exist in different parts of the frame, all under one

set of springs, and with one thickness of packing.

I will now proceed to give the result of the application of this mode of testing on the various forms of printing-frames in common use.

The form of frame in most common use here, and that which seems to be the favorite, is made with a brass or iron spring fastened by a pivot to the centre of each half of the hinged back. These springs turn on their centres, and the extremities are brought under metallic projections, which are fastened on the rim.

On examining the pressure exerted by this form of frame, it was found to be extremely unequal. The whole force of the pressure is delivered upon the middle of the negative, in the direction of a line passing through the two pivots on which the springs turn. From this line as we recede towards the edges, the pressure diminishes with truly striking rapidity. The packing (consisting altogether of soft material, and no paper or mill-board), was increased in a frame of this form until the springs, before they could be forced under the projections, were flattened fairly down against the back, for their whole length, except at the very extremity. Here it might be supposed that the pressure would be equalized, each spring bearing on the back for three-fourths its entire length. But such did not prove to be the case. There was still a most objectionable preponderance of power at the middle portions.

Another serious objection to this form of frame lies in the twisting motion which it is necessary to give to the spring, both in opening the frame to examine the print, and in closing it again, if the exposure has been found to have been insufficient. This twisting movement may have a tendency to communicate itself from the spring to the back, and thus carry the paper with it. I remember in at least one instance, to have noticed when printing with one of these frames, that the paper had moved, and that a double impression had been made. But the destruction of an occasional print in this way is a matter of small importance. The serious evil to be dreaded is the frequent shifting of the paper by an

almost imperceptible quantity, a mere hair's breadth, or even less. Sufficient to deprive the picture of just that last perfection of trueness which is so much coveted, and yet not enough to afford a clue to its origin. Perhaps enough only to be perceptible to a very careful printer, and at the same time almost inexplicable as to its source.

Another form of frame which has been largely used, and which is older than that just described, and has been a good deal superseded by it, is that in which two hinged bars carry each a spring, and when closed, are secured at their ends by springs attached to the rims of the frame. This form of frame is not as convenient as that last described, the bars are a good deal in the way, and it takes longer to open and shut for the purpose of examining the print. The frame is heavier by the weight of the bars, and decidedly less handy, which I presume is the reason that the first described form has so largely taken its place.

Nevertheless, trials with this form of frame demonstrated a great superiority in its action. The pressure was distributed with far more equality—indeed there was no noticeable difference between the amount of pressure at different portions of the surface of the negative.

Nor is this at all difficult to understand. By the construction of the first-described form of frame, almost the whole of the pressure is delivered at the two pivots. Whereas in the second form of frame, the pressure is delivered at the extremities of the springs, that is, at points about equidistant between the middle and the ends of the back. Also the pressure so delivered upon two points of each half of the frame, instead of upon one.

With the bar-frame there is also a complete immunity from the danger of twisting the back and moving the paper, in the operation of opening and shutting the frame to verify the condition of the print. This alone is a sufficient advantage to give that description of frame a decided superiority over the foregoing.

I come now to a third form of frame, one which has lately been introduced, and which is, I believe, patented. Two horseshoe



springs at the back shoot each a pair of bolts which slide into a groove in the rim of the frame.

There is here an evident immunity from danger of slipping or twisting, and a great facility in examining the print. But with this the advantage ends. The pressure is evidently quite insufficient, and is not as well distributed as it might be; it is applied at four points at the edges. This is better than the first pattern described, but inferior to the bar-frames. The insufficiency of the pressure is sufficient in itself at once to condemn this form of frame, and it is not easy to see how it could be increased. It would be necessary to greatly increase the power of the horseshoe springs, and then these would become too stiff for the hand to open easily. This form of frame has been greatly recommended as affording a security against breaking negatives. That it possesses this quality, I do not doubt, but it must evidently be at the expense of the definition of the print.

It is probable, however, that the most frequent cause of the breaking of negatives is not so much the greatness of the pressure as the irregular application of it, and irregularity in the glass, whereby the pressure is applied more strongly at some parts than others.

Be this as it may, I think there is no doubt that the bar-frame is the only one that is capable of exerting the proper amount of pressure and of properly distributing it. As to the breaking of negatives, that is to be avoided in various ways—by using elastic packing, and not, as some do, sheets of paper, or mill-board. By not leaving the negatives in the closed frame and under pressure after the printing is done. But most of all, by using thicker, stronger, and flatter glass than is generally done. Every one knows that common photographic glass varies very much in flatness, some being almost perfectly flat, and other portions being considerably curved. Much indeed is offered, bought, and used that is utterly unfit. Much of the glass is so curved that the centre of the sensitive plate of four-quarter size will be a full sixteenth of an inch further back than the focussing plate. Negatives taken on such

glass, even if by some accident they are successes, are worthless, because they can never bear the requisite amount of pressure in the frame.

Some may be disposed to say, What is, after all, the need of so much pressure? Why is it not sufficient to apply the paper with a gentle pressure to the negative, without forcing it into contact so strongly?

I answer, if we could carefully calender our paper after sensitizing and drying (after fuming, if that is to form part of the preparation), we would require much less pressure, for then we should have two surfaces flat, or so nearly flat, that a moderate pressure would bring them into contact. But our silvered paper is not thoroughly smooth and even. And the albumen, coagulated by the bath, is more or less horny, so that the paper is not very flexible, and does not easily fit itself closely even to a plain surface. To bring it into close contact, pressure is required, and no inconsiderable amount. *How* much, no one would feel inclined to believe without having to some moderate extent examined for himself. Nor will any one without such examination readily believe the very great difference that exists in the amount of pressure which the two forms of frame are capable of applying. In fact, to the one there is scarcely a limit, but the discretion of the operator, while to the other, there is a limit very quickly reached, in fact, long before the desirable amount, requisite to yield the sharpest effects, is produced.

Another remark remains to be made. The close contact of the paper is far more important when we print by diffuse light, than when we work with the direct rays of the sun. And in vignetting through tissue paper it is most important of all. For in direct sunlight we use parallel rays, or rays nearly parallel, so that even if the paper does not quite touch the plate, the rays still retain their quasi-parallelism after passing through the intervals which we have supposed in some places to exist between the negative and the paper, and a sharp picture may still be the result. But where we work by diffused light the case is very different; the rays are not parallel, and the moment they pass through the negative

film they scatter and become confused. Still more is this the case when tissue paper is used. The paper becomes, as it were, a new source of light—undulations are distributed from it in all directions. Hence, to get the best effect of a negative, the contact should be insured by a powerful pressure.

It is probable that the parallelism of the rays when direct sunlight is used, has been the means of saving many a print, when the pressure itself was insufficient, and where, had diffused light been used, the print would have been greatly inferior in definition.

Finally, it may be remarked, that fumed paper would seem to require strong pressure for a special reason. An albuminous layer when once moistened, does not rapidly dry, and consequently in the brief interval which usually elapses between fuming and printing, complete desiccation from the effects of the humid atmosphere of the fuming-box may not have taken place. But when exposed, with a powerful sun on one side and absorptive layers of cotton or woollen on the other, some drying must take place. If the pressure is but slight, a contraction of the paper may be reasonably apprehended; but if considerable, such a result is prevented. This is certainly an argument in favor of the use of carbonate of ammonia for fuming, as has been latterly proposed, as with it the paper is not dampened.

### On Some of the Causes of Fading of Photographic Prints.

MR. JOHN STUART read a very interesting paper upon this subject, at a late meeting of the Glasgow Photographic Association, which we would like to publish in full, had we the space, but the following extracts contain the most valuable hints, which it will be well to consider:

"We all know how loud the press has been in denouncing our works as not permanent, never considering whether it is the fault of the producer or the process. I make bold to affirm that prints, if *well* fixed, well washed, and not exposed to a destructive atmosphere, are quite permanent. Remember

that I here speak of unmounted prints only. I shall, before the close of this paper, lay before you a process by which I consider that photographs are protected even from the effects of a bad atmosphere.

"All photographers are at one in regard to using fresh hyposulphite of soda for fixing, but I find that they generally content themselves with fresh solution every night; for instance, they put into the fixing bath as much solution as will fix their whole day's work, which may amount to say fifty sheets of paper. Now, to fix these prints well, would involve ten operations, as there should not be more than five sheets of paper fixed at one time, and there should be no more solution put into the bath at one time than is necessary for these five sheets, taking a fresh solution for every five sheets, and so on, till all the fixing is complete. Now you may ask, for what is all this trouble and waste? I have good reasons for it, and they are these: Say you try to put in ten sheets; why, before you have got all the prints into the bath, the first will have been in about seven minutes; so that if they are left to fix, for say twelve minutes after the last was put in, you have some of your prints very much bleached and rendered almost worthless. Further: from the immersion of the first print in the soda until they are removed from it, they should never rest, but be constantly turned, as, if left at rest, the soda in immediate contact with them will be so much weakened that it will fail to fulfil its office. But you may say: Why throw it out after it has fixed five sheets? Well, you can see this, that if the solution was just the strength to fix the first batch, it cannot now be of sufficient strength for a second. But you now remark: It was rather to the strong side at first. There it was you were wrong; it should just be the strength required, and no more. This will be determined by the kind and thickness of the paper used, and the strength of the salting solution. I find that for thick Saxe, six and a half ounces of good hyposulphite of soda to the pint of water, answers the purpose very well.

"At the risk of repetition, allow me to say again, use fresh hypo for every five sheets of paper; never attempt to fix more than

five sheets at one time; and always keep them moving from the time that they are first put in until they are removed. In this way you will be likely to secure permanency, provided always, that other things are done as they should be. I may here remark that great care should be taken to remove all the silver from the prints before toning; this washing should be done in rain or distilled water, and on no account should salt be added until they are well washed. As regards the washing of prints, there is no end to the plans for that purpose; it would be vain for me even to attempt to enumerate all that have been recommended, and are in use for the washing of prints—suction this, and cradle that, till one is almost brought in mind of his baby days. I have had a few contrivances for this purpose myself, and were I to ask each one of those now present, in all likelihood each would have a different plan.

"I was invited, not long since, to visit the print washing-room of one of our members. I accordingly did so, and I assure you I felt no small amount of gratification when I got outside the door again. There was such a ramification of piping, pumps, vats, cisterns, tanks, worms, waterspouts, and syphons, I hardly knew at first whether it was intended to shampoo or drown me, and as I was prepared for neither, you will appreciate my desire to take my exit.

"This is one instance of the anxiety of photographers to render their works permanent—one which must have cost the photographer concerned a good deal of hard thinking as well as hard cash. No doubt but with a good supply of water in the arrangements mentioned—and which, thanks to our highland lakes and mountains, we have—the end will be partially gained, but not to my thinking as well as by the plan I am about to describe, which does not require such a large quantity of water, and involves very little trouble.

"Having taken the prints from the fixing bath, throw them into a large flat porcelain dish half filled with water 90° Fahrenheit, separate them, turn them well, working in the dish with both hands until the prints are well freed from the hypo taken with them from the bath in which they were fixed.

They should be in this pan for about five minutes; then lift them, one by one, and lay them on the top of one another. They should now, if small, be well pressed between the palms of the hands; if large, laid on a strong plate of glass placed at an angle of 45°, and well pressed by the hands till almost dry. Then take them one by one, and put them into a fresh pan of water, of not less temperature than 65° Fahrenheit; separate them well, and keep constantly turning and moving them about in this water for ten or fifteen minutes; then press them between the hands or on the plate of glass as before described. Leave them in a pan of cold water for some three hours; after the lapse of this time the washing process must be repeated three or four times in tepid water, when they must be left for the night. In the morning they are put through the same washing three or four times. There should never be too many prints in one dish at a time, as some may miss the washing. If very large prints, they should be washed singly on a plate of glass—water being allowed to flow on the back of them—and well dabbed over with a sponge. They should then be put between sheets of blotting-paper to remove all surface moisture. The blotting-paper should not be too long in use, as it is apt to become saturated with hyposulphite of soda."

Mr. Stuart now follows with some remarks upon mounting-boards, which he asserts are the cause of much of the fading of photographs, and suggests the following method as a preventive:

"Something must be done to get rid of the evil complained of; and, seeing the present paper-makers are so heedless of this (to us) important matter, perhaps a new company might be formed that would manufacture mounting-boards chemically pure, or nearly so.

"In the meantime, our prints must be mounted; and, as paper boards are the only thing on which we can mount them, we must do our best to check, if possible, the bad effects of hyposulphite and other deleterious matter in the boards injurious to photographs. The mode I would propose for this purpose, is to saturate the prints with collodion. At first sight this will look



to you a little out of the question, as involving too much expense; but you are no doubt thinking of collodion at sixpence an ounce. Collodion for this purpose, however, can be made as low as two shillings and sixpence per pint; and, as this quantity will go a long way in the covering of prints, it will not be so costly after all."

## PHOTOGRAPHIC TOUR OF 9000 MILES.

(Concluded from page 289.)

AFTER being absent from New York for seven years, I felt a degree of pleasure when the good ship "New York" hove in sight off the Narrows, thus dispersing all the uncertainties of ocean travel, and placing me once more among friends and past associates. I had resolved to lose no opportunity to see and learn everything that could be of use to me in building up a first-class business in the heart of the continent, and happy was I to secure, as guide and director, my esteemed friend, Mr. H. T. Anthony, a gentleman whose enterprise in the development of photography has done much to render our manipulations successful.

I saw the Wothlytype, carbon prints, developed prints, pictures by almost every process, photo-lithographs, photo-sculpture, German, French, English, and American cameras, new apparatus, new processes,—enough to confuse one's ideas for some time to come.

I could not help contrasting the free and liberal manner of the leading photographers, compared with those of ten years ago. At that time, in company with a gentleman, now editor of the *Salt Lake Telegraph*, I took the first stereograph ever taken on Long Island, and on one occasion "got stuck." We applied to a photographer on Broadway to help us out of our difficulty, which he graciously did at the rate of \$5 per hour for instructions. If my memory serves me, he did nothing more than rectify the bath, which was foggy, or he may have detected some derangement in the apparatus. Then the intensifier was a profound secret; a collodion formula, one

of the hidden mysteries; winks, nods, and secrets prevailed; every operator was a scientific Bluebeard, who held the keys of photographic science.

Thank heaven a brighter era has dawned; he who reads may know everything necessary, combined with practice, to do as well as his neighbor. Noble spirits have ventilated the subject, and given to the world the results of labors for which they will never get recompense, pecuniarily. I am so tired of photographic secrets that I have but a small opinion of men who profess to have them.

Seven years ago photography was found in the upper stories, in garrets, in yards, and other out-of-the-way places; it is now *out to the front*, occupying a very prominent position in the principal business avenues; splendid buildings devoted to heliography now adorn our cities, both in the East and West. I think Philadelphia carries off the palm for the finest plain work, as far as my observation goes, in spite of all my prejudices in favor of New York. I would not state this much, if it were merely my individual opinion, but it is sustained by half a dozen good critical judges from the West. Fortunately for the reputation of Boston and New York, the barbarians of Utah are not supposed to know much.

One of the objects of my visit eastward was to obtain a wagon suited for taking a series of views on the overland route on my return trip. By Mr. Reeh, Girard Avenue, Philadelphia, I had a wagon made suitable for the purpose, and shipped by rail and steamboat to Nebraska City. With the exception of being a little too heavy, it answers pretty well; but, like every other thing, it can be improved upon. It is about nine feet long and six feet high in the dark-room, leaving three feet of space in front for carrying a seat and provisions. The sides are filled with grooved drawers, for the different sized negatives, and proper receptacles for the different cameras, chemicals, &c., forming a very complete outdoor dark-room. The principal objection I have to it is, that it will get too hot in the summer-time. I propose this year to cover it with white muslin two inches from the outside,

so as to keep it cooler; the sides are of sheet-iron, for lightness and to obviate shrinking; the body rests upon the best platform springs.

Provided with Globes, Dallmeyer Trip-lets, American Optical Company's thirds, chemicals, and everything to suit, I reluctantly left the land of photographic wonders, and followed the *iron horse* to St. Joseph, thence by river to Nebraska City. I did not fail to take a peep at the galleries in the river towns. I am sorry to admit that matters are at a low ebb at most points on the Missouri River. The classical term of "*one-horse galleries*," will apply to the *palaces of art* on the "Great Muddy." I distributed some of your Journals, and hope they have taken root and borne a hundred-fold. So very few men seem inspired with ambition to do something extra, that the art is almost dormant with them. I scarcely found a room that possessed a View lens; most photographers find such an article a good investment. It is surprising that so many do not see it. I found some men that know it all; of course they have stopped learning. I asked one of them how the carbon prints were made? He blandly told me that they were produced by subjecting the sensitized plates to the fumes of carbonic acid gas! Whenever I find a man that has got anything to learn, I know he will be somebody some day.

With two span of mules and provisions for two months, I joined a Mormon train which left Nebraska City for Salt Lake about the 8th of July. As the Mormon trains are all well armed and completely organized, I found it a great advantage, rather than attempt the trip alone, which, by the way, our kind Uncle will not allow any one to do beyond Fort Kearney.

We move slowly the first few days, and gradually increase our pace until we make about twenty-five miles a day. The *modus operandi* of managing a train is as follows: About five o'clock the bugle or reveille is sounded to call up the passengers to prepare their breakfast. About six o'clock all hands are called for prayers; that duty over, preparations are then made to *roll out*; the caravan then travels until about half past eleven or twelve o'clock, then dinner

is prepared, and at two P. M. the journey is resumed, and another camp is made about 6 o'clock. The night-herders then take charge of the herd, and drive them to a good feeding-ground for the night; supper is then prepared, then prayers by the night camp-fires, and the orders for the next day's travel are given by the captain, which winds up the day's journey; guards are then placed around the camp, who are expected to keep a sharp lookout for any sneaking red-skins.

The road from Nebraska City to Fort Kearney presents but few objects of special interest to the photographer. I secured negatives of one or two of the overland stations, and a few rural scenes not remarkable for any particular features different from the same genre of subjects elsewhere. When we reached Fort Kearney it was blowing a gale of wind, but, in spite of that, I made a desperate effort to *take* the Fort, with indifferent success.

From Fort Kearney on to the crossing of the South Platte, near the present terminus of the U. P. R. R., the road follows the Platte Valley, and a more uninteresting road can hardly be found. Very few trees to be seen, and what with the swarms of green flies and mosquitos, and the strong wind that blows regularly every day, your photographic enthusiasm gets cooled down so much that you see nothing worth taking under the circumstances of such a trip. Added to this, you are never free from Indian attacks, for, at the time of our passing along that route, the few settlers on the mail-road were almost scared out of their wits from rumors of Indian troubles.

Now to photograph successfully on the Plains, you must be perfectly safe from Indians, as on two or three occasions in our efforts to secure some views, we found ourselves alone several miles from the train, and run one or two risks of being *gobbled up* by a few stray rascals who are always on the look-out for a weak party, and generally manage to pounce down upon a few defenceless wagons that happen to be passing. The sad fate of your former correspondent, Mr. Glover, shows how uncertain is life in such a place, and the wisdom of keeping a good look-out. The necessary conditions for success under such circumstances are, that you

must have plenty of time at your disposal, a strong party well armed with good Henry rifles, and good animals. A company of men could manage to do something. As it was, I did but little, for, on several occasions, when I reached a place of interest, it sometimes blew a gale, or we had a thunder-storm, or it was the middle of the day, and too hot for working; rarely were the circumstances favorable for producing fine views.

We followed the old road after crossing the South Platte at Fremont's Springs, and kept up on the south side of the North Platte; there we found abundance of wild game, such as antelope, deer, prairie fowl, sage hens, &c.; from Ash Hollow on to Laramie the scenery increases in interest, and there are many fine subjects for the camera and pencil. Scott's Bluff, Castle Rock, and Chimney Rock, are fine subjects, and relieve the tedium of the trip considerably. I secured a view of Chimney Rock and Castle Rock, but could not do anything with Scott's Bluff, on account of arriving there in the middle of the day, for our wagon got so hot that we could only work in the morning or in the evening.

After leaving Fort Laramie we strike the Black Hills, and from this point to Salt Lake City we have a succession of scenes of great interest and beauty, if we follow the old emigrant route via the North Platte bridge, Independence Rock, Devil's Gate, and the Sweetwater country, to the South Pass. The last-mentioned point is the dividing ridge for the whole trip. Here we have a fine view of the Wind River Mountains, clad in eternal snow. West of the Pass we strike Pacific Creek, whose waters, after uniting with the Sandy, flow into Green River, and finally into the Colorado and the Gulf of California. A drive of about one hundred miles brings us to Fort Bridger. From there to Salt Lake City the road winds through cañons and valleys, and offers many features of great interest to the tourist photographer.

There is a certain monotony connected with the overland route, and the more one sees of it the less he will admire it. It is in the neighborhood of Salt Lake City that the principal interest of the whole route is

centred. The Wahsatch Mountains, the Great Salt Lake, the City and Valley, the Hot Springs, the orchards, gardens, &c., offering such a great contrast to the sterility of one thousand miles, that the traveller is lost in astonishment at what he sees. You can readily imagine it was with a feeling of pleasure that we arrived home to the land of apricots, peaches, and every kind of fruit, after the bacon and beans of the Plains, and exchanged the unceasing watchfulness for the quiet and peace of home, for on the Plains no man can feel truly safe at any time.

The reader, by this time, will readily see that photographing in the circumstances under which we travelled, is *work*; what with the care of animals, and standing guard at nights, and having no time to spare, it was a scramble to photograph anything, and unless a man can travel with *art* companions he can do but little.

#### *Resumé.*

To photograph successfully on the Plains and Mountains, you must be well prepared, and, as you will not care to try a view over again after you have once passed the same place, by all means stick to the wet process. After having two or three samples of collodion made expressly for the trip, including an alcoholic collodion, I found the ordinary samples, properly diluted, to do as well as any, and herein lies the principal difficulty, for everything evaporates at a fearful rate, and you must watch your collodion very closely. The cameras of all the makers shrink in this country. The plate-holders go first, fortunately. In New York I saw one made of *rosewood* that had been in use for two or three years, apparently just as good as new. I took the hint and had some made, and pronounce them the *ne plus ultra* for dry latitudes, as the silver solution does not seem to act upon them at all. I have a pile of ordinary holders all shrunken and useless. The rosewood holders have not changed. The American Optical Company's cameras stand pretty well, but the wood and brass-work do not work well together. They seem the best we have. For baths, I use the solid glass in wooden cases; and for dippers, I prefer those made of



whalebone. I used Mr. H. T. Anthony's tanno-gelatine developer, and, on account of its keeping qualities, it is first rate.

Now, if a dozen photographers and painters will unite in one company, and come to the end of the U. P. R. R., from there get two or three mule-teams with light wagons, and any of your portable tents for photographing, proper negative boxes, and every arrangement complete for packing chemicals (always preparing for an UPSET in crossing the Plains), provisions, and other necessities, a *Ballard*, or a *Henry* rifle to each man; water-proof coat and blanket; two pair of good boots (one water-proof); one or two suits of good strong clothes; hams, crackers, yeast powders, dried apples, beans, preserved milk, canned fruits, sardines, and other chemicals, I can promise them as good a time as they ever had in their lives. Prepare to wait one or two days at a point to get good pictures, make up their minds not to be in a hurry, and a series of views can be got that will repay the trouble of producing them. And when they get to the City of Saints, let them call upon Savage & Ottinger, and we will give them the best we have in the shop. Or, should any person or persons wish any information about photographing on the Great Plains, it will be cheerfully given by their humble servant,

C. R. SAVAGE.

GREAT SALT LAKE CITY,  
August, 1867.

### ON REPRODUCTION. OUR PICTURE.

As it is the care of the pastor to watch over his flock, and preach to them such doctrines and such arguments as he finds by intercourse with them that they need—giving the covetous Smith, the sly Brown, and the gossiping, backbiting Mrs. Jones hard raps, over the shoulders of the whole congregation—so is it a part of our mission as we go about, to find out what those who look to us for information need and want, and to give it to them in our humble way, so far as we are able. And we have had occasion to learn, that comparatively few of those with whom we come in contact are able to reproduce or copy pictures properly

and well. This branch of photography has become quite an extended one. Not only are hundreds of old pictures brought to the photographer to enlarge or reproduce in numbers, but copies of popular engravings, &c., are always in demand, and it is therefore desirable to know how to do this kind of work well. It is *more* desirable when we know that these copies generally need working up in colors or India-ink, and therefore add to the receipts of the business considerably. In view of all this we present our readers this month with a copy of Herman Saegert's excellent engraving of "*I went*," from the celebrated painting by Meyer Von Bremen, in order that we may give them a few practical hints upon the subject we have named. There is great room for improvement in this direction, generally, and we hope our readers will give heed to what we have collected upon the subject. There are times when a copy can be made *better* than the original, and it should be *nearly* as good invariably.

First, then, some remarks on

#### COPYING PAPER PRINTS.

"When a large print is copied on a very reduced scale no special preparation is necessary; but when the copy to be taken exceeds, or even equals, in size the original, the coarse granular texture of the paper is also shown, no matter how carefully the light may be directed upon the subject. This texture or granularity may be destroyed in two ways,—first, by placing the surface of the paper in optical contact with a plate of polished glass; and, secondly, by glazing or enamelling the surface of the paper, so that its coarseness of texture shall not be apparent. The first of these has this advantage: that a print so treated is, when quite done with, restored to its original condition, so that, if it has been borrowed, it is restored to its owner in precisely the same condition as that in which it was received.

"To put a print in optical contact with a plate of glass, it is only necessary to press the two in contact with a film of water interposed. The plate of glass must previously have been thoroughly cleaned, then

made wet with water, in which condition the print, also wetted with water, is laid down upon the glass with such precautions as to prevent any air-bubbles being formed. Should these appear, they must be rubbed out by applying pressure behind the print, when they may be forced out to the edge.

"When a print is thus placed in contact with a flat plate of glass, the texture of its surface, no matter how granular previously, will be found to be destroyed; and if copied by the camera in this condition, the resulting negative will be much finer than if it were obtained from a print not treated in this way. It is to the absence of such a precaution, or of that presently to be described, that the copies of *cartes* and similar pictures done by professional copyists are frequently so coarse in texture.

"The other method of destroying the granularity of the surface of paper prints consists in enamelling them—that is, giving to them a surface so smooth and polished as to render them of a glassy appearance. The enamelling of paper prints is performed in the following manner: A plate of glass, having been thoroughly cleaned, has a few drops of a solution of white wax in sulphuric ether rubbed over its surface, by means of a pad of cotton-wool, the surface being afterwards cleaned by means of an ordinary cloth. It is now coated with a good, tough, uniodized collodion, of which there is plenty to be met with in the market under the name of 'enamelling collodion.' When the collodion has well set the surface is made to receive another coating—this time one of gelatine—which is prepared in the following manner:

"Steep half an ounce of gelatine in six ounces of water for two or three hours, or until it has become much swollen, after which place the vessel containing it in hot water, when it will soon become liquefied. In this state it is not sufficiently pure for the delicate use to which it is about to be put, but it may be clarified in a very perfect manner by stirring up with it some white of egg, previously beaten up with a little water. Stir this well among the gelatine solution, and place over the fire in a suitable vessel to boil for a minute or two. After filtration through flannel or similar

material, the gelatine will be found beautifully bright and clear. This solution is used for coating the collodionized glass, which, when dry, may be stored away in any clean place ready for use when required. When a print is about to be enamelled it must have its surface sponged all over, and in this state be pressed in intimate contact with the glass, avoiding air-bubbles. Instead of merely wetting the surface of the print with water, some prefer giving it a previous coating of the hot gelatine, and allowing it to set so as to become tacky before being laid down upon the collodionized plate. The presence of air-bubbles is fatal to the perfection of this operation, but by looking at the surface of the print through the glass the state of the adhesion will be readily ascertained, and any imperfection promptly remedied by pressure on the paper at the point requiring it. The glass, with the print adhering, is now laid aside to dry, the exact time required for which will vary with the heat of the room and other circumstances. Although we have seen pictures successfully enamelled after drying only thirty minutes, it will be a much safer and better plan to allow them to dry for eight or ten hours. Now pass the edge of a penknife round and under the surface of the print, when it will immediately become detached from the glass, and present a surface of exceeding brilliancy and beauty.

"A print treated in this manner may be enlarged by the camera to more than its original size without showing the coarseness so peculiar to the copies seen every day. In this state they are under similar conditions of copying to daguerreotypes and collodion positives on glass, and the same means of copying the latter apply equally to the former.

#### COPYING DAGUERREOTYPES AND GLASS POSITIVES.

"The angle of incidence is equal to the angle of reflection; when, therefore, a polished surface is placed in front of the camera, unless due care be taken in the position and lighting of that object it will merely act as a reflector, throwing into the camera the images which are reflected from its sur-

face. The light falling from the daguerreotype or other picture to be copied must, therefore, be radiated—not reflected. If the light fall upon the picture at an oblique angle, so that while the surface is strongly illuminated no light is reflected into the camera, then so far as the source of light is involved the subject will be properly illuminated for copying. It must not, however, be forgotten that a polished surface like that of a daguerreotype plate will reflect into the camera all that is placed before it, including the instrument itself. For this reason it is advisable to have the camera draped with black velvet, so that the image reflected shall be so black as not to interfere with the image to be copied. Radiation must be at its maximum, reflection at its minimum intensity. We have seen daguerreotypes copied with great success by having a piece of square velvet suspended in front of and immediately below the centre of the camera. The daguerreotype was tilted forward very slightly, so that the reflection from the surface was that of an unlighted plane of black velvet. This, it is obvious, will secure the utmost intensity in the blacks that can be obtained.

“The direction at which the light falls on a daguerreotype is of some consequence; it should, as nearly as possible, be at right angles to the grain left on the plate by the polishing buff. By means of a mirror properly placed, there will be no difficulty in directing the light so as to secure the full advantage from a well-directed source of illumination; for in this branch of photography, as well as in producing negatives from life, very much depends upon judicious lighting.

“The hints here given apply to a great extent to the copying of glass positives; but from the less perfect polish of the surface of this kind of picture fewer precautions are required, and still fewer when the picture to be copied is on paper. In proportion as the glossiness of the surface diminishes so are the facilities in copying increased. We have frequently seen negatives taken in the manner and with the precautions just described, which were so sharp and delicate as to convey no impression to even a skilled observer that they were copies.

#### COPYING ENGRAVINGS.

“What we have indicated as the means to be employed in copying an ordinary photograph applies also, and in a special degree, to the copying of engravings. The utmost sharpness, together with accuracy in placing the picture quite parallel with the sensitive plate, are essential. It is also important that the contrasts between the lights and the shadows be violent, for without this feature the finished print will be flat and dull. In copying ordinary photographs any good collodion and chemicals will answer; but in making a copy of an engraving the *desideratum* is intense contrast between the blacks and whites—clean glass representing the former, and perfect opacity the latter. For securing this necessary contrast the collodion best suited is an old one, in which the iodides preponderate to a somewhat greater extent than in many of the bromo-iodized collodions of the day. The developer, too, must be such as to yield strong contrasts, for which purpose a small proportion of gelatine should be added to it. One of the most convenient methods of doing so is to have a solution in a separate bottle, so as to add as much or as little as, in the judgment of the operator, is really requisite. To equal parts of glacial acetic acid and water add gelatine in the proportion of twelve grains to each ounce of the mixture. Set in a warm place and the gelatine will soon dissolve. When this is added to the ordinary iron developer, it confers densifying properties to a much greater extent than the developer would yield without such addition. It is also better that the usual proportions of protosulphate of iron in the developer should be somewhat exceeded.

“Prolonged development is usually unfavorable to that clearness of the lights in a negative which is so essential when it is requisite to have recourse to after-processes of intensification. In the case of an engraving it is especially necessary that the blacks of the picture be represented by perfectly clean glass. When the first development is completed, and all the vigor and density obtained that can be had without any appreciable deposit on the shadows, the negative should then be fixed and examined. If it be perfectly clean and sharp



it matters little how feeble it may be, seeing that density can be afterwards secured without much difficulty. Without, however, the most absolute clearness of the shadows in the negative, it will never be rendered a good one. It is therefore requisite that we describe

#### HOW TO CLEAR THE SHADOWS OF A NEGATIVE.

"This is accomplished by a double operation, although of a very simple nature. Make a solution of iodine in water, in the proportion of two grains to the ounce; and here we may observe that, although iodine is only partially soluble in water, the addition of a small quantity of iodide of potassium confers great solvent properties upon the water. While the negative is still wet some of this iodine solution is poured over it, when the active ingredient immediately enters into combination with the silver forming the image, iodide of silver being the result. The portion of silver which is thus converted is, however, very small, depending in this respect upon the strength of the solution of iodine. Hence, should subsequent experience dictate a weaker or stronger solution than that above given, of being better adapted for special circumstances, the proportions may be varied to any extent. The thin deposit of metallic silver on the shadows, by this treatment, becomes converted into the iodide, to remove which it is only necessary to pour over the surface of the negative some of the usual fixing solution—either hyposulphite of soda or cyanide of potassium. An examination of the negative after this treatment will disclose the fact that it is now quite freed from that deposit of silver upon the shadows usually known as fogging. Having been carefully and very completely washed, the negative is now ready for being intensified.

#### TO INTENSIFY NEGATIVES AFTER FIXING.

"Although we have never failed in obtaining the requisite density by applying a solution of pyrogallie and citric acids (three grains of the former and two of the latter in two ounces of water), to which have

been added a few drops of a solution of nitrate of silver, yet many, especially those who produce negatives for photo-lithographic and engraving purposes, find that intensification by means of bichloride of mercury answers better in some instances. Make a saturated solution of this salt (corrosive sublimate) in hydrochloric acid, and to each ounce of this solution add eight ounces of water and one ounce each of alcohol and nitric acid. Without allowing the negative to dry, pour over some of this solution, which will flow freely over the surface. In a few minutes the picture will appear of a beautiful white color, so pearly and delicate that one almost feels a repugnance to proceeding further with the operation, and spoiling its beauty. It is, however, at this stage unsuited for its purpose as a negative. It must be carefully washed, so as to remove all traces of the mercurial salt; and, in washing it, attention must be paid to the fact that the film is not now so strongly adherent to the glass-plate as before. It will, however, stand being thoroughly washed, this operation being necessarily conducted with due care. The pearly surface of the negative is now treated with a solution of sulphide of ammonium, the smell of which is exceedingly offensive, but which possesses the counterbalancing advantage of answering better than any other substance.

"With respect to the strength of the solution, although we have seen some use it diluted with an equal volume of water, we believe this to be unnecessarily strong, one part of the sulphide to four or six of water giving quite sufficient strength. The negative, on this application, immediately assumes great opacity, the image being converted into a very deep brown color. So dense may this deposit be made that we have seen a negative of a line engraving which, from its clearness, yielded a good print in a few minutes in bright sunshine, and yet had its whites so impenetrable to the rays of the sun as to show no discoloration on the whites of a print which, by design, had been left under it, exposed to strong light during a whole day. It is often difficult, and seldom necessary or expedient, to carry the densification to such a

length; but in skilful hands it may be obtained."—*B. J. Almanac.*

As we travel among our photographic friends in the country, and not unfrequently in the city also, we are often surprised when looking at their copies, at the apparent want of judgment (or knowledge) used in producing them. And this we are sorry to say, we sometimes see in establishments that, in other branches of the business, turn out work that is a credit to the art. We can only account for it by supposing that this important branch of photography is left to unskilful assistants, whose *desire* to obtain good results is greater than their knowledge how to go about it. Frequently in going into the galleries of inexperienced photographers, you will see an ambrotype or daguerreotype tacked to the wall or the side of a screen, and the lens pointed at it from the ordinary camera-stand, in order to produce a copy. Now this is wrong, radically wrong, for you not only get, in this case, the horizontal rays from the picture, but the reflected rays from all light objects that come within the angle of the lens, thereby producing a dingy, flat, and very frequently worthless copy.

To repeat, then, a perfect negative of an engraving or drawing, three requisites are necessary: 1st. Extreme sharpness. 2d. Strong contrast between the white and black parts of the picture. 3d. There must be no distortion. The first and third of these requisites depend entirely upon the operator and the lens. The second upon the chemicals, and the way in which they are used. In order, therefore, to produce a negative that is perfectly sharp and without distortion, we must have a proper kind of lens. If the original picture is to be considerably reduced, an ordinary portrait combination, with a small diaphragm, will answer very well, but if it is to be made as large as the original, or even larger, a different form of lens must be used. The single view Orthoscopic, Triplet, and Globe lenses, the latter more especially and deservedly, have been the ones most in use for this purpose, and now the Zentmayer lens enters the field. Having then selected the

proper lens, take the drawing or engraving to be copied, and fasten it to a dark non-reflecting screen, considerably larger than the picture to be copied, in order to prevent reflections entering the camera; place the camera upon a solid stand and make it perfectly level. This is necessary, as also that the original must be perfectly vertical, in order to produce straight lines. Having levelled your camera, raise or lower the object to be copied until the lens points to the centre of it (this can be done by measuring from the floor). Then take a piece of twine, and let your assistant hold one end of it to the centre of the front lens, while with the other you point it successively to the four corners of the object to be copied; when they all correspond you will find the image on the ground-glass to be perfectly square and the lines straight. Now focus as sharp as possible; put in the necessary diaphragm and expose your plate. You can use sunlight on the picture if you wish, but a strong diffused light is much better, as in that case you get rid of much of the coarseness shown in the grain of the paper when sunlight is used. An old ripe collodion is the best for this purpose, containing but a small amount of bromide, say one grain to the ounce. If it has been timed right, the development should be stopped when the high lights or opaque parts have appeared, and the black lines should be, when fixed perfectly, clear glass; should it not be intense enough to suit you, use any of the well-known intensifiers for this purpose, but as a general thing copies of engravings should not be redeveloped, as it tends to deposit silver on the lines.

To copy an oil painting properly is a matter of more difficulty, because the numerous spots and reflections from the varnish will enter the camera and injure the negative by forming opaque spots and dark patches, more particularly so when a short focus-tube is used, because the light falling obliquely upon the painting, the incident rays will, after reflection from the varnish, enter the lens and thus mar the beauty of the picture. Therefore the Zentmayer and the Globe lens are not so good for reproducing copies from oil paintings. The best lens we

have found for that purpose is a long-focus portrait combination with a small aperture diaphragm or a single view-lens. They take the camera further from the picture, thereby allowing the reflected rays to pass either to the right or left of the lens, according to the direction from whence the painting is illuminated. In using a long-focus tube in copying oil paintings, you are enabled to avoid the very oblique rays. It is important also in this connection that the painting should be surrounded as much as possible by dark non-reflecting screens, especially behind the camera, for if a light screen or window, or any other light objects are behind the camera, the light from them will strike the varnished surface at nearly right angles, thereby entering the camera, and spoiling the brilliancy of the negative. Unlike engravings, a collodion, rich in bromide, is better, as a general thing, for oil paintings, otherwise, the ordinary negative process will be found best adapted for producing the best results.

We trust our readers will remember these valuable hints, and that our picture will be acceptable to them. In the office of the American Artists' Association, a few days ago we saw a number of copies from various pictures, by various artists, whose work from life was considered good, but their copies were discreditable and very bad. There is no excuse for it. Get a good lens and take more pains. The negatives for our picture were made with the No. 3 Zentmayer lens, and the prints on the new *Alabaster Paper* by Mr. George H. Fennemore, with Mr. F. S. Keeler, southeast corner Eighth and Market Streets, Philadelphia.

### PHOTOGRAPHY IN AND ABOUT THE GREAT PYRAMID.

WE have recently received from Prof. C. Piazzzi Smyth, Astronomer Royal for Scotland, and Professor of Practical Astronomy in the University at Edinburgh, about twenty glass positives, for the stereoscope, of views made in and about the Great Pyramid, during the months of January, February, March, and April, A.D. 1865.

It is rare to meet anything, in a photographic way, more wonderful than these. Not particularly on account of their photographic excellence, but on account of the difficulties that had to be overcome to secure the negatives from which they were printed. A temperature often as high as 90°; clouds of dust and sand, making usual photographic manipulation impossible; and the draining of the bath solution down the plate,—fatal to small negatives,—were some of the trials to be met and overcome. The negatives were made on glass 3 × 1 inch, and were 1 inch in size. No dipper was required, as the plates were held by one end during the several manipulations.

In his work, which has been recently published in Edinburgh, in three volumes, entitled "Life and Work at the Great Pyramid," Prof. Smyth describes his method of working. In the first place he used a bath-holder of peculiar construction. In the front of it is a window one inch square, of optical glass, which is covered, except during exposure, by a brass slide or shutter. The plates are coated by *dipping* in the collodion, sensitized in a second bath, and then fastened in the bath first described, and while in it, the exposure is made, which overcomes the trouble that the trickling of the solution down the plate would cause. The development is effected also by dipping in the solution, watching the progress, of course, and then the negative finished in the usual manner. A graphic description is given by Prof. Smyth, in his book, of his apparatus, his plan of working, and his experiences. He called magnesium light to his aid, while making the views in the interior of the Pyramid, and they, with others, are wonderfully accurate and sharp. He made in all 166 negatives, including the Great, Second, and Third Pyramids; Sphinx; King Shafre's Tomb; tombs near, and portraits at, the Pyramids, and pyramid moving figures. Of nearly all of these he has made selections, and kindly sent them to us, all arriving in excellent order, with the exception of one broken. Two are instantaneous views, one of travellers crossing the sand plains, and the other of the Northern Pyramid village. Here and there native figures are introduced, adding much



to the charm and interest of the pictures. The view of the exterior of the great Pyramid, is immensely interesting. Of this we also have a slide for the magic lantern. Of the portraits "Ibraheem (an old native servant) at his kitchen-door after dinner," is the most excellent, said kitchen being, apparently, some ancient rock-built tomb. The interior views are very curious. Those of the "King's Coffin," inside the Great Pyramid, are made with the measuring bars so disposed as to show the external measure. In cases of this kind magnesium light is surely a great helper. The more we look at these the more we feel as if we had paid an actual visit to the scenes from which they were taken. A thousand years ago, or more, an old Roman asked, "What is truth?" A year ago, a photographer answered, "It is photography!" Another improves on this by saying that it is "a photo-stereograph, taken with a binocular camera, whose two objectives are 2.7 inches apart." Prof. Smyth's ideas do not accord with the latter, however, as we shall see by the following extract from one of his letters to us:

"My own views about stereographs are, I fear, rather peculiar and isolating, yet I hold to them, as follows:

- "1. Only glass transparent pictures.
- "2. Each picture only 2.7 inches wide.
- "3. Both pictures so placed as to be 2.7 inches from centre to centre.
- "4. Great pains taken to set the two subjects fairly in their true places, in each picture, exclusive of the stereo effect.
- "5. To have the negatives taken *not* in a binocular camera; but in two cameras simultaneously worked, and placed at any distance apart to suit the nature of the subject, and the purposes it is required for.

"6. The stereoscope for looking at such pictures, to be not more than 4 inches in solar focus; its eye-pieces achromatic, plano-convex lenses not less than 1.9 inches in diameter, and adjustable both for focus and for distance apart, the latter by turning a right and left-handed screw, carrying the two eye-pieces in opposite ways." We sent Prof. Smyth a number of glass and paper stereographs in return for his interesting present to us; and in acknowledging their

receipt, he makes the following remarks upon them, which it may do good to those manufacturing stereographs to repeat:

"But will you kindly allow me to call your attention to one feature pervading them all, and showing an improvement, or methodization as eminently called for in America as in this country; and it is a case where a great evil to the public could easily be cured, by a little more attention on the part of the *moulder* of the stereographs.

"On passing into the stereoscope one of your slides after another, say a moon, then a moon effect, then a Washington view, then a 'trout stream,' and then a Mammoth Cave, I found my eyes aching, and requiring new adjustments at every change of slide; and why? Because the middle distance-centre of two twin pictures is never at the same length in two successive slides.

"What, precisely, this distance apart of the centre of one picture from the centre of another should be, in terms of inches, may admit of some dispute. But it can admit of no dispute that for the same stereoscope (*i. e.*, optical apparatus), and same observer, the distance should be the same for every successive slide.

"The precise distance for myself I have fixed to be 2.7 inches, so that points in the background of a picture may be more than that, or 2.75 inches apart, or more; and points in the foreground less, say 2.65 or 2.60 apart; but the middle distances (and this equally, whether it is a moon picture, or a terrestrial landscape), are always to have the two images of the same object 2.7 inches apart. Then each successive slide that is inserted into the stereoscope, no matter how different the nature of its subject, is seen instantly by the observer, singly, clearly, and stereoscopically.

"But if one of them should have had that distance from centre to centre of the middle of its pictures, so great as 2.8, or so little as 2.6, on first looking at it in the stereoscope, especially, if that be a *good* stereoscope, with achromatic lenses, and of high magnifying power, you see *two* pictures not exactly overlapping; and some squeezing and humoring of the eyes is re-

quired to *make* them overlap the pictures perfectly.

"Now the best and very tip-top of the pictures you have kindly sent me, are the moon-slides (worth their weight in silver, if not in gold); but the mounter of the positives, is not equal to the maker of the negatives, in his part. For, whereas the middle distances of his *full-moons* are 2.8 inches apart, the middle distances of his *half-moons* are only 2.55 apart. Now what reason on earth can be given for such a provoking *difference*. Every time that I change looking at one moon-slide for the other, I involuntarily objurgate the mounter, though I praise Mr. Rutherford, and thank you. As for the mounter, it is well that he did not live amongst the Hebrews, or he would have been consigned to the penalties of those who ploughed unlawfully with *divers* beasts yoked uneasily together.

"The matter, however, intensifies as one goes on through the group of slides you have sent. The *mean* of the two moons comes very near my rule of 2.7 inches distance. But the Washington City slides, are all 3.1 inches apart at their middle distances; while another glass slide of a fabricated solar eclipse, ingenious enough in its way, has,—oh! horror for the optic nerves,—the distance of only 1.8 inches apart for its middle portions.

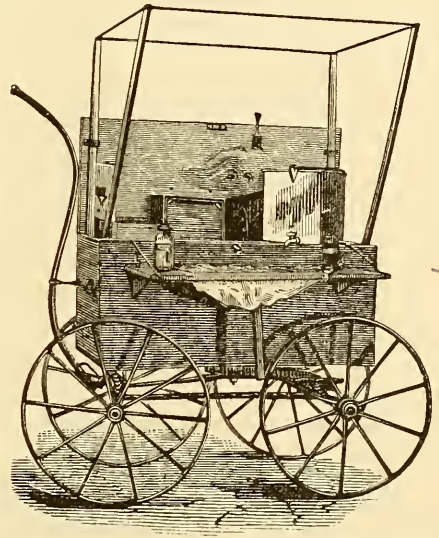
"The Mammoth Caves are generally 3.1 or 3.2 apart; while the country views vary incontinently from 2.8 to 3.1 in the successive slides. Now *all* these distances, as the little girl said, cannot be the one, right, and true distance. But if a photographic congress could only be got once to settle the right distance, say 2.67, 2.70 or anything else, then any stereograph mounter who turns out his slides at any other distance apart, centre to centre, should be prosecuted as a public nuisance for *wounding* the public in so delicate an organ as the *eye*."

Prof. Smyth's remarks are excellent, and his idea of a "Congress" good. We should like to see the subject discussed in our columns, and some size adopted. It could be easily done, as those who make stereos largely in this country are comparatively few.

His work is very interesting to those who love science and travel, and is published by Edmonston & Douglass, 88 Princess Street, Edinburgh; price, in three volumes, £2 16s., or about \$28 if ordered through our importer.

### PHOTOGRAPHIC DARK TENTS.

WE have recently received designs for several photographic dark or developing tents, all of which have some novelty about them. The most complete one we think is furnished by Mr. C. Alfred Garret, West Chester, Pa., and we give a cut of it below, from a photograph sent us by him.



It represents the tent open and arranged for use, except that the bath fits in the tin box and the tent is not covered. The covering is of yellow and black chintz, one of the former, and two thicknesses of the latter, or of yellow alone of two or three thicknesses, and goes over all but the body of the carriage, and a hole in front for the admission of the body. The necessary light is admitted by cutting away the black lining, leaving only the yellow chintz.

Mr. Garrett writes:

"The whole thing packed, measures 52½ inches long, 26 inches wide, and 34 inches

high. The box 38 inches long, 16 inches wide, and 17 inches deep, *outside* measure. The wheels are ordinarily 'child's coach,' 24 inches in diameter, and may be obtained at any juvenile carriage works. The tent is 38 inches long, 36 inches wide, and 36 inches high. Packed, the box contains three combinations of the Zentmayer lens, with box for taking  $10\frac{1}{2} \times 10\frac{1}{2}$  plates; bath-holder; stereoscope-camera, tubes, and holder; plate-boxes for two sizes; bath; chemicals; hypodish; water tank; sink; tent; wrench, &c., leaving room for a day's *provisions*. The tank is made of tin, 16 inches long, 10 inches wide, and 12 inches high; and holds about two buckets of water. The spigot is a common gas-pipe with cock; the stream is soft and small, washes fast enough, and the tank filled will wash eight whole-plate negatives. The plate-box fits in the tank when travelling. The sink is a common  $\frac{1}{2}$  inch pine board, with an oblong hole cut  $14 \times 16$ , and a piece of gum cloth tacked around the edges, with India-rubber pipe attached from the bottom with a gutta-percha joint. The hooks that fasten the lid of the box, also serves to hold the back edge of the sink; the front edge is held by two wire braces, that hook over the edge of the box, and the front edge of the sink.

"It seems a very comfortable place to work in, also very compact. I forgot to say that the box can be taken off the running gears in one minute's time.

"The springs I made of hickory, and find they are better than steel, as they are not liable to be rusted. The whole cost to me, here, was \$17.00, which was more than doubly repaid, the first trip I made with it."

Mr. Garrett's "van" certainly has the merit of cheapness, being about one-half the price usually paid for dark-tents. We suppose that when the wheels are not needed, that a tripod can be used instead. It seems very complete. Little shelves may be fitted in the back of the box-lid, and gum-bands used for keeping the bottles in place.

WE hope you are making up your clubs for next year. See list of premiums.

## THE LENS CONTROVERSY.

WHEN first I produced the so-called "Steinheil" and "Zentmayer" lenses, I had no idea that they would excite such a stir in the scientific regions of optics and photography, nor had I the most remote suspicion that after demonstrating the beautiful nature of the principle of proportions, as shown in my "Ratio lens," that some one else would follow in my footsteps, and claim a patent on the same Ratio lens, unachromatized, this being the form in which all my earlier Ratio lenses were made; nor can I comprehend to this hour, how the United States Patent Office could grant a patent on the Ratio lens merely because it was not achromatized, and that too in the face of my specifications and subsequent letter of reply to their rejection of my claim, which specification and letter really cover the whole ground.

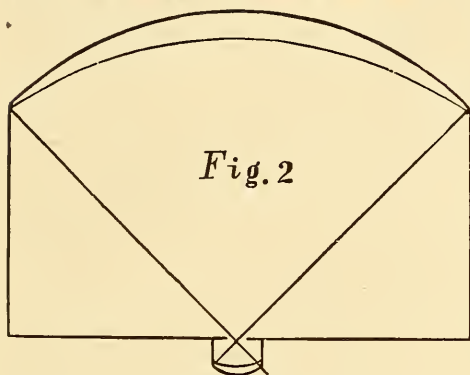
But the interest with which I have watched the conflict as it swayed to and fro across the Atlantic, has not yet been repaid by a broad comprehensive exposition of the principles of achromatism involved in the combination under discussion, and I now ask privilege, as the *original* inventor of those lenses, to be allowed space enough in your really valuable Journal, to illuminate that point a little, after which I will retire to my original obscurity as gracefully as I know how, leaving the glory, and laurels, and good things to be harvested, to those who have done the fighting.

First, then, let me call your attention to the following diagram (Fig. 2), which is that of an unachromatized Ratio lens, made in Boston (after my design), under the superintendence of Mr. J. C. Crosman, for Mr. Black, whom you are doubtless aware is one of the most distinguished photographers in the country.

The front lens is eight inches and three-tenths in diameter, and the back lens, which is precisely like the front one in everything except in size, is nine-tenths of an inch in diameter, and placed concentric with the diaphragm, as is also the large lens, and in these few words you will have no difficulty in perceiving a full and complete description of the "Zentmayer lens," so called, and



as to the priority of invention, the pictures which I inclose, made with this lens, by Mr. Black and Mr. Dunmore, with the



notes written upon the backs of them by those gentlemen, must be sufficient to set that question forever at rest, as they are more than two years prior to any of Mr. Zentmayer's dates. I have in my possession another lens of this same kind, the mounting of which is made of wood and pasteboard, which is older still by about a year, and with which was made the street view marked on the back B.

But as your readers will be more interested in the philosophy of chromatic correction in a lens so constructed, than in personal matters connected with it, I will confine myself to an exposition of the former proposition.

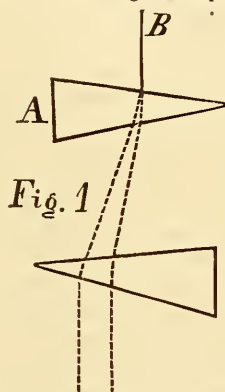
If you compare the pictures I send with the Zentmayer pictures, you will perceive the same character of softness overspreading and pervading all alike, and if you find yourself at a loss to comprehend what I mean by "*softness*," compare either those or the Zentmayer pictures with the picture marked B, which was made with an achromatic Ratio lens also mounted in pasteboard, and any one looking with *open eyes* will need no further explanation.

Now the cause of the difference consists simply in the fact that *one is achromatic*, and *the other is not*, and why the other is not is due to causes which I will here try and make plain.

So long as the *diaphragm* is of any reasonable size, there must pass through it in all directions inside the angle of its field, not a

central ray merely, but a *sheaf of rays*, and the central ray of each sheaf of rays has evidently appeared to all the disputants as having suffered complete correction, because it passes through points in each lens which are equivalent to like prisms, and yet this is one of the chief reasons why *it is not achromatic*, because, owing to the distance between the lenses, the first lens has gained a plus in dispersion, which a lens of equal power cannot overcome and restore. For instance, here is a prism A (Fig. 1), through which the ray of light B, has suffered dispersion in passing; which dispersion we suppose to be represented by the dotted lines which, let us admit for the sake of il-

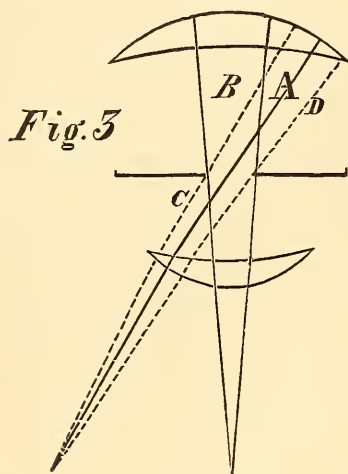
lustration, subtends an angle of three degrees; which three degrees represent the



full dispersive powers of the prism, and if the dispersed ray be now intercepted by a like prism and its dispersion of *three degrees* fully recalled, the scattered component parts of the original ray will only, thenceforth, proceed parallel to each other, and to bring them together at any point behind the prisms, would have required the second prism to be more powerful than the first.

Now what is true of prisms in regard to dispersion, is true of lenses, therefore, it is impossible that any of the cross-rays of an uncorrected *Ratio* lens can meet at the focus free from color, in the sense in which we use the term achromatic, and if the lenses are not of equal power, then the figure suffers distortion. So much for the central pencil of each sheaf of rays; but when we

come to look at that position of the ray which passes through the diaphragm further from its central point, we will find them in a much worse condition still. A (Fig. 3), rep-



resents a section of a sheaf of rays passing through the lens, the central ray of the sheaf being represented by the black line, while the dotted lines bounded by the diaphragm represent the inner and outer edges of the sheaf; now observe that the dotted line C, or edge of the sheaf of rays which has passed through the front lens *nearest to its centre* will fall upon the back lens further from *its centre*, encountering there an angle of glass altogether greater than what it passed through in the front lens, while the other side of the sheaf, represented by the dotted line D, while it passes through the extreme edge of the front lens, falls upon the back lens at a point much nearer to *its centre*, and the angles of the two glasses through which this side of the sheaf passes, are not only very unequal, but the *front* angle being in excess over the *back*, gives the plus gained by separation, on to the side of the *front glass*, leaving due to this ray very powerful dispersion indeed. And when we come to examine the central sheaf of rays B, which pass along the optic axis of the instrument, we are still worse off, and no one will pretend that there is any attempt at correction whatever at that point. The only thing which may be offered in extenuation of the shortcomings of

lenses of this kind, is the fact that at this point the dispersion is feeble, though by no means inactive. The absolute central ray suffers, of course, neither refraction nor dispersion, but all the rays outside of it suffer both, and as the refraction of both lenses upon all the light which passes near the centre is in the same direction, there must of course be the legitimate dispersion due to the amount of refraction suffered. Therefore, the back lens in the region of the optic axis, instead of acting as a corrector of the front lens, actually increases the chromatic aberration, hence, the softness all over the field.

I have been somewhat surprised during this discussion, at hearing very high and respectable authority indeed, quoting the Huygenian eye-piece as an example in favor of this lens, to show that two pieces of glass of the same kind may be made to correct each other; but whoever will take the trouble to examine and compare the causes of the correction in the Huygenian eye-piece and photographic lenses of this kind, will end by seeing that one is a flat contradiction of the other. To guide the examiner in his research, I will only point out the fact that, in the beautiful combination known as the Huygenian eye-piece, the light comes to a focus between the two lenses, while in the Ratio combination it is outside of both lenses, which totally alters and reverses the whole case.

It has been written by a gentleman strongly favoring the "Zentmayer lens," so called, that it will make an excellent picture through an opening one-sixteenth the focal length.

When I read this statement I understood it to mean *what it said*, and I received it with utter incredulity, because I supposed that it squarely meant to say, that any size of that lens would work in that way, as it was given to us without qualification, and I find that I am not alone in the mistake. I take the liberty of advising the writer that if he does not wish to get credit for being an enthusiast, he had better not be so general in his statements. I have been, however, enlightened on the subject, as Mr. Osborne, of the American Photo-lithographic Company, was so good as to show me a

*very small* picture made with one of those lenses, through an opening of one-fifteenth the focal length. I do not doubt that it was so made, first, because the picture is by no means sharp; and second, because the smaller the optical instrument of any kind (and this was very small), the less perceptible the error; hence, almost any lens-grinder can make small photographic instruments, and even tolerable small telescopes, but, as the size increases, such men gently subside, because the error in their lenses increases in the proportion of their size. Consequently, large photographic lenses are scarce, and I am quite sure that the most enthusiastic admirer of the unachromatized Ratio lens will not venture the statement that a lens of sixteen-inch focus will make even a tolerable picture with an opening of one inch.

The lenses with which the accompanying pictures\* were made, are now in my possession, and I will be happy to exhibit them at any time to Mr. Zentmayer or to his friends, that they may fully comprehend how worthless his claims are to the combination to which he has given his name.

In writing this article, I beg to say that I have no pecuniary interest in the matter whatever, as the Scovil Manufacturing Company has bought, and now owns, all the claim to my Ratio lens.

C. B. BOYLE.

420 E. 53d St., New York City.

## GERMAN CORRESPONDENCE.

*American Photographs—Osborne's Process—Zentmayer's Lens—The German Photographic Society—Photographs in Colors—Consumption of Silver and Collodion in the Negative Process—Prevention of the Reflection of the Sun in the Atelier—Collodion Experiments—Action of Bromide.*

BATHING-PLACE, MISDROY,

September 1st, 1867.

MY DEAR MR. WILSON: Rarely have I experienced so much pleasure as was given me by the receipt of your parcel containing American photographs. The collection

proved all the more interesting to me, as I obtained by it a more thorough, perfect, and *favorable* impression of the capabilities of American photographers, than I had formed at the Paris Exposition, where the few American pictures exhibited seemed lost among the thousand and one other things, and part of them were hung very unfavorably. This was especially the case with Mr. William Notman's fine pictures, which were hung up partly at the height of 12 to 14 feet. A cursory glance convinces one that Mr. Notman is an artist out and out; the careful observance of the picturesque effect is remarkable; the grouping and light-tints give, conjointly, peculiar excellence. The "hunting scenes" are full of life and interest, which is felt alike by the artist and the mere observer. I prefer those photographic genre pictures above any, which leave out of sight the means that produced them, and this is the case with Mr. Notman's "hunting scenes." The same remarks apply to his fine cabinet pictures.

Entirely new to me were the pictures of Mr. J. H. Kent. I regret that he had not contributed to the Paris Exposition. Admirable are his cabinet portraits for their nicety of finish, sharpness, and airy half-tones. If I am permitted, I would suggest not to employ too many accessories. Beer's fine stereoscopes and Gutekunst's portraits I have mentioned already in my report on the Exposition. I had read in your Journal, the interesting processes of Meinert and Gage for obtaining good half-tones. Meinert had sent me specimens before yours came, which I laid before the Berlin Photographic Society, whose members admired them greatly. His method is best adapted to ladies' heads; for gentlemen it is barely marked enough. Gage's method I shall try as soon as I return to Berlin. Your parcel I received immediately before my departure to Misdroy, and could not experiment for want of time.

Wendeboth's porcelain pictures, which you sent me, cause me to regret their failure in Germany. The public want paper photographs, and nothing but them.

I would here tender my thanks for the contributions from the different photographers which you kindly forwarded to me.

\* The pictures may be seen at our office.—ED.



I would also pass further eulogium upon your Journal, which, with every succeeding month, gains in versatility and reliability. With it the interesting researches by Dr. M. Carey Lea, the introduction of Rowell's carbon process, Rutherford's splendid productions—the Zentmayer lens—Osborne's process, &c., &c., all impress upon my mind the great achievements and rapid progress of your countrymen in photography. Osborne's photolithograph in your last number is a masterpiece of reproduction. From the darkest black, to the lightest gray, from the boldest stroke, to the faintest line, are all rendered with fidelity. In the old world, Osborne's process could not gain favor; the practical American knew its value better.

Of special interest to me were the proofs of the Zentmayer lens. In the beginning of summer several of them, which you had sent on, attracted general notice in the Photographic Society, in Berlin. They were admired for their softness, and especially for the equal distribution of the light over the whole plate. The latest experimental-proofs are as such of double interest. I shall lay them before the Society, in October, as they have vacation now. As we are speaking of the Society, I will report some news therefrom. Of late years, it has acquired members from all parts of Germany, and as they soon wished to share the benefits of it as to reports, specimens, &c., several branch societies were formed, one in Hamburg, another in Chemnitz, &c., &c., all of them united under the name of "General German Photographic Society." The several societies assist each other by sending their reports and specimens, and in this manner your specimens will travel all over Germany.

Following these remarks, we will pass on to the more practical. In your last number you have an article on the production of Photography in color, and by it I am reminded of the experiments of Niepce de St. Victor, in Paris. He there exhibited in Paris very beautiful specimens of Photography in color on silver plates.

They were put up in leather cases, and then again covered with a black wooden lid. Both must be opened to take a view, and as this, perhaps, happened say twenty

times a day, they were exposed to daylight often. In consideration thereof, their stability was remarkable, as during the eight weeks they were on exhibition, they lost but little. At present a permanent colored photograph is, indeed, not to be thought of, and even supposing the problem, to fix colored pictures, to be solved, there remains yet another drawback, which deprives it of some of its charms; that is, the great difference between natural colors and photograph colors; only blue appears exactly blue; green appears in a peculiar dirty green, and, therefore, I am inclined to think that a landscape in colors would appear to less advantage, than one executed in black only. It is quite doubtful whether this difficulty will ever be overcome. If there be a landscape with strongly contrasted light and shade, it is hardly possible to get the details equally developed in both; either the shadows are too dark, or else the light is solarized. An addition of bromide helps often in one, but it is worse for the other. How much more difficult might it prove, if to the light and shade contrasts, color contrasts are to be added. A few months ago I furnished an interesting article upon quantitative photography, in the results of a series of experiments to determine the consumption of silver in the positive process. In connection therewith, I have made another series of experiments, to ascertain the consumption of silver and collodion in the negative process. Of course it is only possible to fix data for specified cases, as here formula of collodion, thickness of film, temperature, &c., &c., are of vital importance. I take my standard collodion consisting of

Iodide of cadmium, . . .	1
Bromide of sodium, . . .	$\frac{1}{2}$
Bromide of ammonium, . . .	$\frac{1}{2}$
Alcohol, . . . . .	30
Plain collodion, containing 50 per cent. alcohol, 50 per cent. ether, and 2 per cent. gun-cotton, . . .	90

It is my habit to coat thick, and I found that at 63° F., for 153 square inches, English (1 German square foot), 178 grammes of collodion were used. To determine the

consumption of silver in the negative process, 1800 cubic centimetres of bath were prepared with 10 per cent. of silver salt, and in a shallow basin 5236 square inches of sensitized plates silvered; thus the plate was analyzed quantitatively; the loss in liquid amounted to 645 cubic centimetres, the loss in silver salt was 69.17 grammes, consequently a plate of 1 German square foot will absorb 17.43 fluid, and 1.88 grammes silver salt, including all incidental losses of any consequence in the drying of the collodion.

My friend Grasshoff, who has done good service to the photographic world by practical suggestions (I repeat, to call your attention to his excellent method of retouching negatives, and to his varnish), has lately published a very simple way to avoid reflections of the sunlight, which are often very annoying. He covers the obnoxious panes with starch-paste, until they be dull or half-transparent; it may be put on thick or thin, and in winter, when the sun stands low and all the light is wanted, warm water will take it off. The latest researches of Dr. M. Carey Lea about collodion show how little is our knowledge on this important subject.

For years I have been occupied with the study of the negative process. Considering the abnormal effect of color I always choose a colorless subject, such as a plaster of Paris bust surrounded with black drapery, which shows of course but shades of black and white. On this subject I tried two different collodions, both with equal quantities of iodine, one with, the other without an addition of bromide, time of exposure for both alike. I found that iodized collodion gives a more intense picture of the plaster of Paris image, while bromo-iodized collodion renders the details in the dark parts more distinct. I therefore concluded that iodized collodion was more sensitive for bright light, while bromo-iodized collodion was most sensitive for feeble light. Schrank recently has tried to disprove my assertions, but experiments with colored subjects and Mr. Lea's published results in his paper prove him wrong. The fact of Schrank using colored subjects proves sufficiently the futility of his assertions. This is still more plain

when you compare his results as given in your July number, page 221, with mine as above stated.

Truly yours,

DR. H. VOGEL.

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### "Novel Experiences," or Other Trials of a Photographer.

MR. EDITOR: If variety is the "spice of life," it may well be reckoned a "seasoning" to photography. My late experiments furnish me with no small amount of that article, and so I send you a few samples.

Be it known to you, then, that I have taken a pleasant house on the borders of the Hudson, and, since early in June, have waited, with my bath prepared and my plates cleaned, watching for a chance to photograph the romantic scenery, which I know must abound in this vicinity,—unless noble hills and far-reaching woods, and roaring brooks, and a broad river, dotted with white sails, can exist and yet furnish no materials for the landscape painter, and the photographer. Well, here I have tarried all these weary weeks, and have scarcely had my tent poles put together or my lenses adjusted.

It has been rain, rain, rain, till the potatoes have rotted, the roads run off in streams of mud mingled with gravel, and subsided into quagmires, and the very milk-pails have come home half filled with water! for the unfortunate cows are so thoroughly soaked, that they yield one pint of water with every pint of milk to the dairy maid, who looks like a *mermaid* as she sits with her dripping hair in her dripping dress, under the dripping eaves of the dripping barn in the sloppy barn-yard! Well, you say, where is the novelty? Has it not rained everywhere? Has not each photographer found himself shut up by a series of rain-storms and showers, which have brought the land within thirty degrees of the hundred inches which would make a deluge? True, sir. *But to day it was clear.* This morning the sun actually rose cloudless! The rain-spouts were silent when I awoke. I heard roosters crow as if they had recovered from their cough, hens

cackle as if they had laid eggs which they did not expect to see floated away; cattle low as if they had thoughts of going afield, and hoped to find pasture to eat as well as water to drink, and I said joyously, "The weather has changed at last, and we may look for sunshine." So I got my "traps" ready and was off betimes, accompanied by two enthusiastic friends, and searched the selected field of operations. I was glad. So was *he*. So was *she*. We took umbrellas! simply for the sun, sir! We expected to need shade, and prepared for a day's enjoyment. I wish I could describe our camping-ground. A rustic bridge of considerable length, resting here and there on low bush-covered islets, stretched over a wide inlet on the Hudson. Upward or northward the stream wound its way, between high precipitous rocky banks, crowned with trees and draped with vines. Far up, at the head of the creek, lay a most picturesque wreck. An old schooner had grown weary of work on the river, and had gone to lay its bones on the reedy banks, under the overhanging rocks, while in the foreground a flock of white birds (I think the folks call them geese), sat, almost motionless, occasionally dressing their feathers and vibrating their tails, in peaceful repose, repeating their graceful forms in the placid mirror of the adjacent water. One need only turn south to see the broad bay and noble buttresses of the Hudson near Rockland, the grand masses of the hills clearly outlined against the cloudless sky, and brooding, as it were, over a fleet of vessels with shining sails becalmed in their shadows. In the remote horizon were other hills as high and grand, but gradually dwarfed by the distance, and softened in tone by the intervening atmosphere.

It was, indeed, a glorious panorama, and full of admirable photographic subjects.

As the bridge and connecting causeways were narrow, I pitched my tent on one of the little islets before noticed. I had a "Zentmayer lens" kindly loaned me by a friend. I was anxious to try its capabilities, having read the controversy about it, carried on in your interesting magazine, and the *British Journal of Photography*.

M. Carey Lea, Professor Morton, and Mr. Zentmayer affirmed that this lens *did* certain things which the London folks affirmed *could not be done*. But as your correspondents appealed to *facts*, and their opponents to *theories*, as the former said "*it does*" what the other said it *ought not to do*, according to their authorities and to their ideas of the rules of optics, I felt rather favorably disposed towards the lens, recalling the time when a scientific gentleman affirmed it was not possible to navigate the ocean by *steam*, and another "savant" showed that "anthracite coal" was *incombustible*, or likely to be the last thing consumed in the final conflagration! Well, sir, I thought the simplest way of settling the dispute to my own satisfaction, was to *try* the lens. So I adjusted my camera and exposed my plates, and as there was a good deal of mist in the air, owing to recent rains, and some clouds had come up obscuring the sun, I gave the plates an exposure of from one and three-quarters of a minute to two minutes. I took in a very wide area, covering a breadth of from two to six miles. My extreme distance was at least five miles off, and the result was that every object in foreground, middle ground, and back ground, was rendered perfectly sharp. I could see the feathers on the geese. I could count the streaks on the distant wreck. I could distinctly recognize the details of the remote mountains. Everything seemed to be equally in focus. To focus one object was to focus every object, far and near. There was no ghost nor sign of one, and the plates were as perfect at the outmost edges as at the centre. This was to me a novelty. I do not know what laws or what authorities these facts may run foul of, but such *are* the facts of the case, and, though a misfortune happened to these particular plates, I have others which I have printed, where the facts are recorded and can be witnessed.

But now I had another *very* novel experience. It clouded over, as I have said, and by the time I had finished four plates, to my great surprise and intense disgust *it began to rain!* I transferred my camera to a neighboring shelter, but left my tent on the little island before described, expecting



to return and renew my labors as soon as the shower was over, *for, of course, with the wind westerly, it would only be a shower.*

But the shower settled into a steady down-pour, and my companions suggested that possibly the tide might rise and wet my tent. So I went to see after it, and sure enough, the tide *had* risen, my tent was wet! *I had to wade to reach it!* I opened the covering! My dear sir, you never saw such a sight! Everything that would float was floating, and everything that could sink was sunken. My candle was sailing about on a slide. My negative box was supplying the plates with salt water. My bath was bathing in the same element, and as I looked down disconsolately at the chaos, upon my word, sir, I saw *eels* squirming among my traps, as if on a voyage of discovery, and several *fish* swimming about on the same errand! Am I not right in calling this a novelty in photographic experience? To come back to one's tent and find it suddenly converted into an "aquarium!" I declare I was so surprised, that I never thought of catching the eels and fish, but only hastened to rescue my traps and regain the causeway.

The salt water had saturated everything that could be soaked, and affected the negatives in a way about which I may have occasion to write to you hereafter, for I should not be surprised if this accident led to some curious discoveries. My gray coat, which I had left in my tent to be safe from the shower! well, sir, it was a curiosity for color, shape, and *smell!* The odor of commingled salt water and photographic chemicals, with a flavor of India-rubber tent, is, I assure you, singular and far from satisfactory, and, now, I think of it, the eels and fish (if I may judge of their feeling by their squirmings), were of the same opinion. But I will not occupy more space in your valuable paper by further remarks. May I not, however, conclude my article with the single assertion that my day's adventure is fairly to be classed among the novel experiences of a photographer?

M.

NOTE, by one of the party. As one of the witnesses to the facts above narrated,

we feel bound to testify that, to us, the perfect good humor with which the amateur artist bore his vexatious trials, struck us as not among the least noticeable *novelties* of the adventure. Judging by his bright face and cheery voice and pleasant smile, one might imagine that spoiled baths, and drenched tent, and intruding eels, were among his daily experiences, and rather amusing incidents.

### CARBON vs. SILVER PRINTING.

MR. EDITOR: In the September number of your Journal appeared a communication with the above caption, the tone of which was so unnecessarily excited and ungentlemanly, that the writer himself was ashamed to affix his real name to it. This fact alone is the best response to this fabrication; and had the subject been of a private character it would have been ignored by me, but it is due to my friends not to allow it to pass unnoticed.

Your correspondent seems to have rather a peculiar idea of what a scientific society should do, and what not. He seems under the impression that the purpose of the society should be only one-sided, and subjects brought before such a body should only be looked upon from the side coinciding with his own ideas. He forgets that discussions on matters of science and art to be exhaustive, ought to embrace views from different points.

It seems to him to be a great crime, that I should dare to compare the mechanical parts of the new and old process, and his rage because the Society accepted the *paper*, is perfectly ludicrous.

He evinces poor logic when he asserts that I am "inconsistent," by saying in one place "I prefer silver printing *for general work* to carbon, and further on, that I hope to improve on the latter."

Nowhere in the paper have I *condemned* carbon printing, I simply stated facts as they came under my immediate notice, and, am sure, such as will be noticed by many more.

I, by no means, intended my paper to be *conclusive*, but only to give my experience

as far as I had gone at the time. I am continually experimenting in carbon printing, and in making the tissue, and am producing some very satisfactory results. At the exhibition of the American Institute, now being held in New York, I exhibit scarcely anything else in plain pictures but carbon prints, and all who have opportunity may examine them there.

It is not within my power to create difficulties when there are none, as it is in the power of your correspondent to banish them by a scratch of his pen. I am confident photographers will soon become aware as to who is right.

It is very illogical to deny assertions, and then find refutations to all of them and more.

Dr. Vogel's statement, that Mr. Braun, of France, has found the cost of carbon printing to be one-eighth less than that of silver printing, is inadmissible, as prices for materials in France and here in America are very different.

That the prices which I have set down in my estimate, are not too high, I will only mention that I estimated 8 ounces of hydrocarbon varnish at 50 cents, whereas the price asked is 60 cents.

From what I have had an opportunity to learn, there seems to be an indisposition amongst practical photographers to take up carbon printing, created by the conviction that the *Carbon Tissue Manufacturing Company* are going to make a *big thing* of it, as they are selling under improper names well-known materials, at, as I think, outrageously high prices. For example, *coal naphtha* which can be bought for 80 cents per gallon, they sell under the name of "transferring solution," at ONLY 50 cents per pint, over 400 per cent. profit.

In conclusion, permit me to recommend your correspondent to read in No. 379, August 9th issue, of *British Journal of Photography*, an article copied from the *Notes* by Mr. Blair, with the heading "Carbon versus Silver Printing," to learn how gentlemen write.

Yours, respectfully,

F. A. WENDEROTH.

PHILADELPHIA, Sept. 9th, 1867.

We are very sorry this matter should have assumed so *personal* a nature. Time will tell who is right, and probably it would be better for us all to try the carbon process fairly before we decide finally upon it, and, for the present, cease discussion. We are perfectly willing that a fair hearing should be had from both sides, but we do hope our correspondents will stick to *facts*, and avoid personalities, otherwise we must decline their communications.—ED.

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### STEREOGRAPHS.

THERE is no branch of our beautiful and wonderful art that is more charming than the stereoscopic. Do you travel? Then you will find photographers everywhere, and you may gather, as you go along, stereographs of the points of greatest interest, and bring them home to refresh your memory when you relate your travels to your friends, and to remind you years afterwards of your happy times. Are you not a tourist? Then you may make collections of stereographs and journey all over the world and *under* it, without the time, expense, and inconvenience of travel. Stereographs possess a great *educational* power too, and in time will be indispensable in our academies and colleges. But we need not expand here.

If our readers will bear with us, we will only review a few stereographs that have been kindly sent us during the past month. First, we have quite a number from Mr. George Washington Wilson, of Aberdeen, Scotland, whose fame is world-wide as an artist. Well does he deserve it, as the views before us testify. They embrace marine, landscape, and architectural subjects in great variety. Among the former, which are all instantaneous, we have several war steamers at anchor in the harbor, firing from their broadsides, and the artist has caught the smoke as it left the cannon's mouth, giving a beautiful effect. "Waiting for the Boat," "Arrival of the Boat," and "Departure of the Boat," are of scenes familiar to us all, and very natural. The angry water, the waiting crowd, and the excited new-comers, are all artistically caught by the camera. Sev-

eral sunset views on Loch-in-Park and Loch-in-Dorrbh are very fine.

Mr. Wilson is unexcelled in his landscapes. If any particular branch is his *forte*, it is landscape photography, and one great reason is this: He never goes view-taking in a hurry. The first day is usually spent in tramping around, watching the light, and selecting the view, and the second day, if favorable, the views are secured. The major portion of these on our table are of Scotch scenery—lakes, mountains and mountain passes, cascades, and caves. Ben Nevis, with its clouded locks, and “In the pass of the Trosachs,”

“Where twined the path, in shadow hid,  
Round many a rocky pyramid,”

are certainly inspiring and grand. Loch Katrine, from and above the boat-pier, Ellen’s Isle, Loch Katrine, and several other views of the same lake, are the perfection of beautiful photography and atmospheric effect, and almost transport one while looking at them. The views of Fingal’s and Clam-shell Cave are very interesting and wonderful. What a place would photography have if we could all secure such effects as these. May we not hope to do so some day?

None the less effective and perfect are Mr. Wilson’s architectural views. He has favored us with a variety of castles, cathedrals, exterior and interior, of humble cottages, all admirable, and a number of street views quite as interesting and fine. Would that we had space to enumerate them all, or better, that our readers could all enjoy them with us. Balmoral, Windsor, Stirling, and Abbotsford, Westminster, Melrose, York Minster, and Dryburgh, are all here, with Sir Walter Scott’s, Burns’s, Nelson’s, and the National Monument, at Edinburgh. The Lincoln, Peterborough, Wells, Carlisle, Gloucester, and Durham Cathedrals, with the Inverary Cross, end the list. The interiors are most wonderfully taken—they are perfect. After the treat we have just had, we can truthfully say that no series is complete without some of Wilson’s Scotch views. Come and spend an evening with us, and we will con-

vince you every photographer should procure some of them and study them. We shall endeavor to profit by ours as well as enjoy them.

Mr. Charles Bierstadt, formerly of New Bedford, Massachusetts, has been spending the summer at Niagara, constantly busy photographing when the weather was favorable. We paid our respects to him while there, and bore away a number of prints from his new negatives, with us. He has been working instantaneously considerably, and with charming success. His views of the rapids, from No. 95 to No. 110, are wonderful specimens of photography, and something rather fresh and new. Some of his cloud effects are also very good, and “The General View from Victoria Point” gives one a view of the whole of the Falls. Such photography is sure to bring its reward. Mr. Bierstadt uses the lime-toning bath. He also uses a Bergner’s cutter, cuts his paper out before printing, and with the cutter makes masks for his negatives, covering all not desired in the print, and the paper being cut by the same means, fits the masks and is easily printed. Mr. William Notman’s practice is the same. It is a great saving.

Mr. A. F. Styles, Burlington, Vermont, has sent us a number of views of Green Mountain scenery. They are all from dry plates, but by what process they were made we are not informed. They are fairly up to the average of wet-plate work, Mr. Styles seeming to have got rid of much of the harshness that generally troubles dry work. They are very creditable, but can be improved. “The Willows, Lake Champlain,” is a real gem. Most of the others would have been better if a little less strongly printed.

Mr. H. R. Lindsley, of Auburn, New York, kindly favors us with eight stereos, made at the home of Hon. William H. Seward, Secretary of State. They are of several family groups, our Secretary being in all of them, and of scenes about his household. They are very nicely taken, and Mr. Lindsley will exchange with any one for other stereographs, or send the whole set, postpaid, to any one, for \$2. He is deserving of patronage.



## PHOTOGRAPHIC SUMMARY.

BY M. CAREY LEA.

GERMANY.

*Phosphate of Soda in Positive Printing.*—Wilde affirms that the use of phosphate of soda in the positive bath yields a print perfectly free from all tendency to turn blue-black in the toning bath. The shadows and half shadows of the print, when removed from the printing-frame, have a yellowish sepia tone, which passes, in the gold bath, to a warm brown sepia.

Another peculiarity is that the paper is more sensitive. Thick negatives give softer prints on such paper, with better half-tones, and print quicker. His printing-bath is made as follows :

1 oz. of Nitrate of Silver in 10 oz. of Water.  
1 " Nitrate of Soda " "

Add these solutions, and to them a drachm of ether, and to 4 grains of phosphate of soda dissolved in a little water. On this solution the paper floats four to six minutes.

By increasing or diminishing the proportion of phosphate, different tones are obtained.

*Toning.*—The same photographer uses phosphate of soda in toning. His method is to make two solutions :

1.  
Phosphate of Soda, . . . 15 grains.  
Nitrate of Potash, . . . 10 "  
Water, . . . . . 2 ounces.

2.  
Chloride of Gold and Sodium, 4 grains.  
Water, . . . . . 1 ounce

To each three sheets of albumen paper, take 2 ounces of No. 1, same of No. 2, and 4 to 6 ounces of water.

He uses the gold solution until entirely spent. When weak, begins the toning in that which is already partly exhausted, and finishes in fresh.

*Substitute for Cleaning Plates.*—Linde dissolves iodine in ether till the latter has a light brown color, pours it over the plate like collodion, and then, before the ether is quite dry, collodionizes, taking care not to

incline the plate too much in collodionizing, otherwise, streaks may result. With these plates clean pictures are always, he affirms, to be got.

The oldest plates can be used, he affirms. Even that a plate can be taken, the finger be rubbed over it, or it may be drawn over the hair of the head, or otherwise soiled, and yet will, by the above means, give a perfectly clear picture. The author does not propose that dirty plates shall be used, but proposes this as a method of insuring clean pictures.

ENGLAND.

*Straightening the Camera Image.*—The reversal of the image on the ground-glass has always been an annoyance to the photographer. It is never so easy to judge of the effect, when the image is seen in so unnatural a position. Bad as this is with portraiture, it is perhaps even worse with landscape work, in which the photographer is compelled rather to judge by looking at the landscape, as to what effects he will produce, and merely judging by inspection of the ground-glass, whether he includes exactly what he intends to. Various methods have been proposed for this result. An ingenious one was Sutton's proposition, to suspend a mirror at an angle of 45° inside, so that the image should be thrown upon a ground-glass plate set in the top of the camera. The effect was judged of on this; the focussing and the impression were made after the mirror was drawn up. But this arrangement was entirely incompatible with a bellows-body, and with almost any camera arrangement permitting of considerable variety of focal lengths. It was, moreover, found very difficult of execution even by the most ingenious makers, and was finally abandoned.

An arrangement, first proposed, if I recollect right, by an East Indian correspondent of the *British Journal*, has lately been brought forward again, and is certainly the most practicable that has yet been proposed. So much so, that especially as it has not been trammelled by a patent, it seems worthy of adoption.

A mirror, the same size or nearly as the ground-glass, is fitted to a thin wood back,

and this is hinged outside the focussing-frame, so that when pushed up the mirror lies up against the ground-glass. It can be opened and held at any desired angle to the ground-glass. The operator, by looking down into it, sees the ground-glass image reflected in the mirror, and sees it correctly, not reversed. The position is also evidently more convenient than that of crouching down and looking horizontally.

Accurate focussing will best be done against the ground-glass in the usual way, but, for judging of pictorial effect, the mirror will be every way preferable.

A couple of thin brass springs, attached to the frame, would be useful for keeping the mirror up when not in use.

### VOICES FROM THE CRAFT.

**CARBON NEGATIVES.**—The very great sensitiveness of the tissue prepared by Mr. Rowell, of Boston (a few seconds being sufficient to obtain an impression from a negative of ordinary intensity), has suggested the probable practicability of using the tissue for the purpose of obtaining negatives by exposure in the camera, or, in other words, a "carbon dry process."

As the idea seems to have much that is valuable in it, and as my engagements do not admit of much experimenting, I place the suggestion in your hands, that by publication in your Journal it may meet with the attention I hope it merits. Should the tissue be found to be more sensitive in a wet state, corresponding to the difference between wet and dry collodion, I see no reason why it could not also be used for indoor photography, as I think a carbon negative will be found to have many advantages which are not apparent at first sight.

WILLIAM NOTMAN.

MONTREAL.

I HAVE often thought, when seeing a notice in the journals of some one being poisoned with cyanide, that I would communicate my *experience* on the subject, and will do so now. I have been much affected by this insidious poison, and for a long while did not know what it was that rendered me nervous and filled me with a dread

of sudden death, a horror, I might say, until I got hold of a little volume on Metallurgy, by Napier, which described my sensations exactly, but no sufficient remedy was proposed. Knowing the trouble, however, was a relief in itself. I set about discovering a remedy, and found that alcohol was a specific. Do not imagine I drank it; I am too temperate for that; I *snuffed* it; snuffed it whenever I had those sensations before referred to. Whenever I had occasion to use it on my hands, I washed them with the alcohol after drying them on the towel, taking care to *snuff* or breathe it in order to destroy the poison I might have inhaled. In a short time I found I could control the symptoms, and now am entirely free from them.

The book on Metallurgy referred to was a British publication, and would be no detriment to the photographer in our own country if it found a place in his library, as a reference on the cyanide question.

Photographically yours,

C. S. GERMAN.

SPRINGFIELD, ILL.

Many thanks to Mr. German. We shall endeavor to get the little work he mentions, and reprint the extract, but we find it very scarce after several trials to get it.—  
ED.

**MR. EDITOR:** In your last number of the *Photographer*, your correspondent, J. M. Letts, after asserting that he had used the process which I have patented, for seven years, then goes on to say that he has abandoned it for another that there "*is no PATENT ON.*"

If Mr. Letts had carefully read my specifications he would have discovered *that his new dodge is patented*. In those specifications he will find these words: "Good effect may be produced *by admitting transmitted light upon the sensitive surface.*" Now it makes no difference what Mr. Letts transmits his light through, whether ground, red, or yellow glass, or cloth, or other medium, it is just as much an infringement of the patent as the use of the cloth for reflecting the light.

Mr. Letts also tells us that Professor

Towler claims to have published something concerning this process "*some years ago*."

If the Professor had, indeed, published what he says he has, he would probably be able to give a more definite date. However well, Mr. Editor, "*some years ago*" may look in print, it is very much too indefinite to allow any interested parties to refer to it.

Truly yours,  
F. B. GAGE.

LOW PRICES.—I WAS sorry to see nothing about our low prices in the last number of the *Photographer*. This subject *must* be attended to; it *must* be discussed by the fraternity, and some definite understanding formed in regard to higher prices.

Tintypes and two-cent pictures have been made in quantities by selfish and jealous rivals, until the public have got the idea that *pictures do not cost anything*. And until some *decided move* is made by the fraternity, either by holding a convention or otherwise, we shall continue to run behind, pecuniarily, and our zeal for doing good work will also be abated.

For example, I was called upon to make a picture of a child, and, although tiresome,

I went about it with a will, and secured a good one at the third trial. The mother inquired the price, and was told 30 cents (it was a one-ninth size ferrotype). She remarked that she would have two copies of it if I would make them for 25 cents each. This I declined doing, until I saw I should lose the job if I did not meet her terms.

She pronounced them "good! excellent! couldn't tell *which* the *copies* were!"

The amount due for them was 80 cents. She handed me a dollar, and said, "Hadn't you better call it 75 cents, sir. Mr. —, across the street, takes them for that." Alas! such were the thanks I received for that wearisome half hour of whistling, cooing, crowing, and spoiling of chemicals.

I told her blandly that I could *not really afford* to take less.

Excuse me if I am wearisome, but I feel as if something *ought* to be said every month about the present prices, and *your Journal* must say it. For as the printing press is the power that moves the public, so your *Journal* is the power that moves our fraternity and craft.

FRANK ROBBINS.

WESTERLY, R. I.

## Editor's Table.

ART PAPERS.—We have in preparation, and hope to introduce in our next issue, a series of papers which shall have in view the education of the eye with reference to photography, and embrace practical hints on composition, expression, posing, chiaroscuro, &c. &c., to be amply illustrated by wood-cuts, lithographs, and photographs. They will be the result of much study, attended by much expense, and probably be continued through the whole of our next volume. We announce them now as an earnest of what we intend to do for our readers next year, and hope they will *begin now* to work for us while we work for them, and *treble* our subscription list.

WE are indebted to the officers of the Mercantile Library Company for a complimentary ticket for 1867 and 1868, giving us the privilege of referring to their shelves whenever we find it needful. We are glad to know that the "Mercan-

tile" continues to prosper under its excellent President, T. Morris Perot, Esq. Would that our city had more corporations like it.

LEAF-PRINTS, or Easy Lessons in Photography without a Camera, by Charles F. Himes, Ph. D., Professor of Natural Science, Dickinson College, Carlisle, Pennsylvania. This is a beautiful little book which we shall issue from our press early in October. See future advertisements.

THE AMERICAN INSTITUTE.—The thirty-seventh annual exhibition of the American Institute, New York, is now being held, and will continue until the 26th of October. The photographic branch is well worth a visit, and full particulars concerning it may be expected in our next. Carbons, cabinets, porcelains, &c., are there in elegant profusion. Go!







Boston Public Library

T H E

# Philadelphia Photographer.

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## ART PRINCIPLES APPLICABLE TO PHOTOGRAPHY.

### I.—INTRODUCTORY.

BEFORE the invention of photography, *art* was, and had its principles well defined; and he who would be a painter must study those principles, either under the tuition of a professor; by the careful study of works of art, and of the written instructions of those who had made art and its principles a life-pursuit, or of all combined; by educating the eye and the mind to constant harmony with all that was really good or grand in nature; and by practising the hand to a truthful delineation of what is seen in nature or created by imagination, and thus become a painter. Now, as there is no royal road to excellence in painting, neither is there in photography, and as we have given line upon line, and precept upon precept, on the chemistry of photography and its practice, upon the use of apparatus, upon skylights and glass-houses, and how to use them, it is now our purpose to invite our readers to the study of *Art Principles Applicable to Photography*.

We have just withdrawn our hand from one of the pigeon-holes where we keep the specimens of work sent us from time to time, and have brought it out full of pictures. Some of them were made five, some four, some three, some two, some one year

ago. They are a fair criterion, and most plainly tell us that *photography has much improved during the past five years*. If some of those who made the five-year old specimens were to see them now, and compare them with what they are making to-day, they would feel very much as a man does who views a hat or a suit of clothes that he wore five years ago, and be ready to disown them and to exclaim: "Can it be that I ever made such pictures?" You have learned so to manage the collodion, and the bath, and the developer, and the paper, that you can produce admirable chemical effects. And in a few of the more recent specimens, it is evident that the subjects we are about to treat in the following papers are not a novelty. We can trace in the graceful flowing lines, the well-arranged light and shade, the judicious introduction of accessories, that the educated mind and eye has been at work, but, in too many instances, alas! we may well ask, where do you get your authority for those heavy shadows under the nose and eyes of your sitter? Who told you to put that great high vase two feet above the head of your subject? Why that great shadow on one side of the figure, while the other is completely solarized? Why stand that family in a long line like corn-stalks in a field or sun-flowers in a garden?

May we ask the question: What is the de-



sire of your subject when he enters your studio? and, secondly, What is your object in making a picture of him? The object of both of you is to secure a *likeness*. One that the spectator may examine, and say with truth: This is, indeed, to photograph! this is a true, living likeness; perfect nature; it is not a photograph! it is outline, form, proportion, position, attitude, light and shade, freedom, ease, *nature!* Near, at a distance, on all sides, truth and nature! evident to everybody; disputed by none; a joy to the friends and a good thing for the photographer. This should be your object—this *is* your object, if you are an earnest, conscientious, artistic photographer, and we hope you are. Emulate such excellence, and you shall have fame, and wealth, and thanks, and your work shall honor the Great Being whose creation it is your noble gift to imitate.

As careful should you be not to falsify and distort the work of the Creator, as the translator is to secure the true meaning of the scriptural text. Every photograph is important to some one, displaying the mind and the character, good and bad.

Now the style which characterizes the work of a photographer, as well as that of a painter, depends a great deal upon the character of his own mind. The rules of form, composition, light, and shade, bear the same relation to him that the rules of spelling, grammar, and composition do to authorship, and it is just as essential that he should study these rules, as it is that the author should study the others. If you are willing to study them with us, in the papers that shall appear in this series, we shall endeavor to present them so plainly that you will find it easy to understand them, and to carry them into practice. All will be lost, however, unless you undertake this in a philosophical spirit, and let such a spirit be your director throughout. What we shall produce shall be with the humble purpose of doing you, and the art you follow, good service, and, as we go along, we shall illustrate our meaning by the use of photographs, lithographs, and diagrams, sparing no time, no expense, or no labor.

As we have already indicated, the painter, to excel, must educate the mind and the

eye, and train the hand, by much practice; to skilfully render either what he sees in nature, or his imagination may suggest. Now, the photographer requires precisely the same education of the mind and the eye; the hand of the photographer has also to be trained, but in a somewhat different way. This way we have so often and so legibly inscribed in our pages, that we think no careful reader can mistake it. It is true, there are still some difficulties to overcome.

We still seek for lenses of greater depth and power; in fact, the known qualities of long- and short-focussed lenses combined in one, yea, more than this; opticians have done much in the past, especially of late, and we hope for much in the future, knowing there are many busy brains alive to our wants, and striving hard to supply them. We also look for much from our chemists, as we must not rest satisfied until we have obtained chemicals of greater sensitiveness. *Instantaneous indoor photography* ought to be our motto, and that equal to the finest results obtained by long exposures at present. It is true that, under favorable circumstances, we have now the power of taking comparatively instantaneous outdoor effects of water and sky, but, what black under-exposed masses of foliage generally accompany the same. Let each one imagine for himself what glorious results might be obtained with such increased power. The varied and quickly changing expression of the human face divine; the stormy, driving clouds; the wind-bent oak and waving willow, all within our grasp! with those, we say, and with mind and eye educated on the principles of art, works may, and we predict will be, if many have not already been produced, which will indubitably stamp photography as a fine art, and its votaries more than mechanics—*scientific* mechanics, if you will.

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### VARIOUS PHOTOGRAPHIC REMARKS.

BY M. CAREY LEA.

*Varnishing Cold.*—Varnishes which dry cold, without drying dead,—freezing, as the French expressively term it, seem always

greatly to reduce the strength of the negative. Those who prefer that method of operating, have proposed the application of adhesive solutions, gum, or gelatine to the wet negative, whereby the drying dead is prevented. Blanc has made this suggestion in Paris, and Mr. Wenderoth here.

It seems to me, however, that there is a serious objection to this mode of proceeding. I have experimented largely, I may say very largely, with gum and gelatine in connection with photography, and do not think their adhesion to glass can be depended upon with the same certainty as in the case of varnish. We all know that the adhesion of a good varnish to glass is something remarkable. But films of gelatine can, under some circumstances, be peeled off from the surface of a glass-plate, and gum adheres less forcibly than gelatine, and is more liable to crack.

In varnishing a gummed negative, the varnish has no opportunity of penetrating to the glass, but can only rest upon the gum or gelatine, because these substances are perfectly insoluble in the solvents employed for making varnishes. The adhesion is, therefore, no greater than that produced by simple gumming, though of course the face of the negative is protected. The risk of scaling off with time and use, would certainly seem to be greater in this mode of operating than by simple varnishing.

*Pyrogallie Acid.*—There are two ways of managing the pyrogallie redevelopment; one, that of dissolving the nitrate of silver and citric acid, and using the pyrogallie acid in crystals; the other, that of dissolving the pyrogallie acid and citric acid together, and using the silver solution alone. I have always used the former of these methods, which, I believe, is the most general. Now, in adding the pyro crystals, these cannot be shaken out of the bottle into the water contained in the developing vessel, because the quantity cannot so be properly regulated; there is, therefore, a temptation to shake them out into the palm of the left hand, which is, doubtless, very convenient, but is apt, at the end of the work, to result in a black stain extremely difficult to remove.

I have lately adopted a little contrivance which, trifling as it is, is, nevertheless, exceedingly convenient.

I take a piece of glass-tube about  $\frac{5}{8}$  inch in diameter and 6 or 8 inches long, break away one side of one end, making a sort of spoon, seal up the other in a gas-flame and pass the tube through the hole in the cork of the pyrogallie-acid bottle. The convenience of this arrangement could alone make it worth while to adopt, independently of the avoidance of stains on the hands. There is also much less danger of introducing impurity or dampness into the pyrogallie acid.

One-half the end of the tube should be broken away for about  $\frac{3}{4}$  of an inch back. This is easily done by inserting the shank of a file into the tube and pressing out, using the end of the tube as a fulcrum. Instead of sealing up the outer end of the tube in a gas-flame, those who are unfamiliar with managing such manipulations, can seal it up with sealing-wax.

In speaking of avoiding stains, a word may be said of the pneumatic holder. The long-handled holders of this sort are exceedingly useful, and no one who gives them a fair trial will hold the plate in his fingers again. The adhesion is always reliable and the convenience very great.

*Landscape Lenses.*—Having worked a good deal with Dallmeyer wide-angle landscape lenses lately, I have come to like them very much. They cover a plate of the ordinary shape, of which the long side is equal to the focal length of the lens, that is, an  $8\frac{1}{2}$ -inch focus lens covers a whole plate without straining the lens. This gives a good wide angle of view, not so wide as some of the doublets, but as wide as can be advantageously be included in the generality of views.

When an  $8\frac{1}{2}$ -inch focus lens is used for a whole plate with an  $f25$  stop, the picture is quite sharp, up to the borders. Leaves in the foreground, quite up to the edge, are sharp and well defined, and I consider this to be the proper and normal stop of the lens. With an  $f20$  stop the definition at the margin is not satisfactory, unless all the objects are nearly in one plane, this stop is therefore of only exceptional use.

With a very small stop, I presume one of

these  $8\frac{1}{2}$ -inch lenses would cover an  $8 \times 10$  plate, and that an  $f\ 35$  stop would accomplish this satisfactorily, but have not tried, because I believe that with such stopping, the details in the shadows are always injured, and I am very much inclined to the belief that the flatness attributed to pictures taken with small stops depends precisely upon this absence of detail in the shadows. Be this as it may, the incapacity of the small stop to render faintly lighted objects is a sufficient objection to its use, unless in exceptional cases. The wonderful effect which a small stop has in increasing definition and depth of focus is continually being described as something new, by some one or another who chances to remark it; of course, nothing is more familiar to old photographers. Unfortunately, this advantage is completely counterbalanced, in most cases, by the accompanying evils.

My friend, Mr. Sheperd, who is a close observer, although prizing the lens just described, considered that he got more detail in the shadows with Grubb's Aplanatic than with any other lens. But the Grubb lens includes too small an angle view to give the work pleasing and satisfactory effects, as may be observed in many otherwise beautiful landscapes taken with lenses that only give "bits" of views.

What is most wanted in landscape photography, is a lens which will cover a whole plate with satisfactory definition and depth of focus, and work with a stop of  $f20$ , or, if possible, still larger opening. The great difficulty which the landscape photographer has to combat, is the unsatisfactory rendering of deeply shaded foliage in the presence of well-lighted objects, such as light buildings, light-colored stones, and rocks in direct sunlight, &c. The difficulty varies with the light and with the nature of the foliage, and leads some photographers to prefer sunless weather on taking views. In a word, it may be said that harsh contrasts increase in harshness precisely in proportion as the stop diminishes in size. So that, for every reason, we say to the optician, give us lenses that will work with large diaphragms, and precisely as you do this, you will, sooner or later, other

things being equal, gain an absolute preference for your lenses.

## OF NATURAL AND UNNATURAL IN ART.

BY REV. H. J. MORTON, D.D.

IN days gone by, I have uttered and heard expressed a good many confident criticisms on pictures, which subsequent observations would lead me either to contradict or largely qualify. Scenes, said to be, and thought to be quite unnatural, have been proved to be perfectly correct. How far it is wise for a painter to portray aspects of nature, which *seem* to be untrue, may be questionable; but that nature often presents herself under forms quite strange and apparently unreal, is undoubted.

There was a grand picture lately exhibited in this city (Philadelphia), and elsewhere, in which a wide plain was portrayed apparently many miles deep, while above the clouds that lay on its further extremity, a mountain peak was visible, which peak seemed to be but half or quarter of the distance. The summit of the hill, in other words, seemed scarce half the distance from the spectator of the base. This, of course, could not be the fact. Still, so it was represented, and the representation was confidently declared to be untrue—unnatural. But a day or two ago I saw precisely the same phenomenon. The broad bay lay before me, its remote borders loaded with low-lying mists, which covered all but the top of a grand old hill, which bounded the view. The base of the hill was hidden, and was, to my certain knowledge, more than three miles distant. It had been measured again and again, on the ice when the bay was frozen over. But above the cloud, the hill-summit lifted itself up into the sunshine, and was, to all appearance, not one mile off. It seemed to hang over the base and the bay beneath it, though far beyond both, for the hill sloped away with a long and gradual sweep. Here was a fact before my eyes which, exactly represented, must have been pronounced entirely counter to nature.

Again, I was travelling over one of the



mountains near Pottsville in a hand-car, on a rail-track constructed to reach a coal-mine. We paused at a particular point in the road, and my conductor asked me "which way the car would go if abandoned to the force of its own gravity?" I replied unhesitatingly, *forward!* The road is "obviously down hill before us." He lifted the break, and the car immediately and rapidly ran *backward*, not forward. We were on an *ascending* grade. I could not explain the phenomenon till I took out my sketch-book and tried to draw the scene. Then I discovered that there were two grades of different degrees of ascent. The part I was on was ascending, but less sharply than the portion just beyond. Compared with this, the grade where the car rested seemed to be descending, and must so have appeared had it been faithfully pictured. In color, this fact is equally apparent. That is, we constantly *see* effects which, if portrayed, would be pronounced at once strange and unnatural. A few days ago, I sat looking across the river watching a sunset. The hills lay in deep shade. The sky above, for many degrees, rose up a mass of burnished and burning gold. Then came a broad strip of the purest blue. It lay like an immense piece of lapis lazuli let into a burnished metal plate or shield from the California mines. Then another line of clouds lay horizontally above, the lower edges of bright rose-color, the upper parts of deep purple, while up to the zenith there followed flakes of gold and purple; fragments sprinkled over a mingled mass of green, and blue, and yellow vapor. In the river all this was repeated as with increased intensity. Nothing outside of a kaleidoscope-tube ever offered so distinctly variegated a pattern of brilliant colors. As I looked, a row-boat started from the dock on the near shore, and pulled across the river. As she traversed the golden portion of the mirror, she left behind a long narrow line of *intense purple*. It seemed as if she was drawing after her a splendid ribbon, which twisted and turned, reflecting the light from the undulating edges. To have painted this scene, would have been to outrage all our ordinary notions of nature. This thought recalls the impression produced

by the ordinary appearance of the ocean washing the islands in the Caribbean Sea. Its intense blue is singularly beautiful, but strangely unnatural. One doubts if it can really be sea-water that is girding the islands. Looked at from a high point of land, and studied as it comes washing in over coral reefs, the effect is startling. The water, where it passes over the reefs, assumes a glittering golden hue quite dazzling, and then reaching the deep basin inside the barrier, resumes the beautiful and intense azure which it exhibited before it broke into brilliant fragments on the rocks. As to atmosphere, there seems generally to be none in these latitudes. No accurate estimate can be made of distance, save by the practised eye, familiar with the real position of hills and houses. The far-off cocoanut-grove seems nigh at hand; you wonder that you have to walk so long a time before you reach it. The details of distant buildings are so sharp and distinct, that you cannot imagine the edifices divided from you by more than three hundred yards, till you have traversed twice or thrice the supposed interval, and have not yet reached them.

In distant mountains, I have noticed that the supposed height is always greater than the real altitude. That is to say, if you draw a distant mountain *as it appears* before you, without carefully comparing and measuring it by intermediate objects, you will draw it *too large*. I have been surprised and disappointed again and again, at the deductions I was compelled to make in my sketches of noble hills which towered before me, and seemed to fill the eye, dwarfing all intermediate objects. Careful comparison forced me to confess that I had exaggerated the hills, and must curtail their proportions, if I would be true to nature and in accordance with facts. The reason of this, I suppose, is that we draw *the impression made* by the object on the mind. The eye is fixed on the hills, and we feel the majesty of the elevation, and try to express it; and it is only when abandoning the impression we begin to examine the details, and compare one thing in the landscape with another, that we see the exaggerations of which we have been guilty.

In one of Turner's pictures (belonging, I think, to his set of views of the rivers of France), there is a bridge and steeple. The steeple looks in the print, as I presume it appeared in nature, a very tall and imposing affair. But if you come to measure it, by comparing it with adjacent objects, you will find that if the drawing is correct, the steeple must be a quarter of a mile high, more or less.

The moral of these remarks is, that to judge of what is natural and unnatural in art, one must needs be a student of nature and of art, and a careful one; not prone to hasty conclusions, but patient and candid, and ready to recognize truth even if it contradicts custom.

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### A FEW HINTS ON CARBON PRINTING.

As we believe much of the success of the carbon process depends upon the interchange of ideas among those who are experimenting with it, and as we are desirous that this interchange of ideas should take place, we beg to set the example, and in what follows, give a few hints that have suggested themselves as we have proceeded. They may be found useful.

It is well known that bichromate of potash is an active poison, and allowing it to get into sores and scratches should be carefully avoided. It is hardly necessary to put your fingers into it at all, if you work *carefully*, but as some cannot do this it would be best when the skin is broken to use rubber finger-tips or gloves. After sensitizing the sheet it may be removed from the bichromate by first lifting one corner with a slender stick, piece of whalebone or wire, and then catching it with a clip, thus handle it, and after dipping, hang it up to dry. The room where the tissue is dried should be well ventilated, for the quicker it dries the better it is.

As the hydrocarbon varnish runs off the sheet of plain paper after floating very slowly, and it is desirable not to waste it, we find it convenient, to save time, to have a clip over our pan, by which we hang the sheet to drip while another is float-

ing. It should be carefully watched, however, and secured by *two* corners before it becomes dry enough to curl and stick together. If care is not taken the varnish will get on the back of the sheet and roll down it. This does no damage, except that when rubbing the fingers over it subsequently it is found unpleasant. It may be avoided in a great measure by having your pan perfectly level, and by using the little rod or whalebone to lift the corner of the sheet from the varnish. An ordinary knitting-needle is about the best thing, and will be found useful frequently. The varnished paper has been used by us when several weeks or, in fact, months old, but it will be found the best if used within thirty hours after floating. Mr. Swan sells varnished paper already prepared with his tissue, but in using it, for some reason or other, we failed, and have been unable to get any good prints on his tissue. We find it requires a longer exposure than the American tissue, and in sensitizing it a great deal of carbon is washed out, making the bichromate solution very black. With the other this is not the case, and altogether we find it the most pleasant to work. However, our experiments with the Swan tissue were hasty, and it may require a little different treatment, though Mr. Wenderoth's experience with it is the same as our own. It is much heavier and thicker than the other, and in the first transfer makes the water very black.

We have no rule in sensitizing the tissue. We place about a dozen pieces in at a time, separately immersing them, and first remove the one first immersed.

In a note from Mr. Rowell, he says:

"I have made an improvement in the printing since your last issue, which is well worthy of attention. It is this: To the sensitizing solution of one ounce of bichromate and thirty ounces of water—after the bichromate is entirely dissolved, and all well shaken—I add *one ounce* of the best quality of Stuart's table syrup. I have used various qualities of syrup, and also good molasses, **FREE FROM ALCOHOL AND ACID**, with good success. Therefore, where Stuart's best syrup cannot be had, use the best syrup that can be obtained, or the best

molasses. After adding the syrup, the whole sensitizing solution should be thoroughly agitated or stirred, until the syrup is *perfectly mixed* with the whole mass. This addition of syrup, while it creates no disposition on the part of the tissue to adhere to the negative while printing, causes the tissue to lay in perfectly close contact with the surface of the negative, and so annihilates all those blurred, 'want of contact' places, so often met with in making prints on albumenized and silvered paper. The addition of the syrup is especially valuable in printing line engravings, where close contact is indispensable for good results."

We have tried this but once and are hardly competent yet to pass judgment upon it, but think it is good.

It is very important to have a good roller press, one that runs even and regular, or the prints will be spoiled. We have tried pressing them in a strong pressure printing-frame, but it does not answer so well. It *will* answer though for those who are experimenting in a small way.

Do not be in too great a hurry to pull the sheets apart in the hot water. When they move easily under pressure of the thumb and finger, they are in condition to be separated. When the water is hot the little rod will be found useful to turn the prints around, or to lift them out for examination. For this we use a round pen-holder.

In making the last transfer be careful not to have the plain paper *too wet*, as failures are often caused in this way, and also by using *too much pressure on the rolls* when making the last transfer. The paper should be thoroughly wet, but should be "blotted off," so as not to present any free water, or floating water, on it to the glued surface of the picture. And the pressure employed in making the last transfer, should not be very much greater than that used in rolling the two rubber-varnished surfaces together. We have had some prints from beginners, which were rolled so hard as to force the glue, on the surface of the picture, *quite through the film of carbon* of which the picture itself is made. Although such a proceeding does not always ruin the picture,

it certainly has a bad effect, and sometimes renders the picture worthless.

As far as we have discovered, we find nothing else worth mentioning. We hope others will give us the benefit of their experience, and let us work together and confer with each other until we can make perfect work. One great advantage of this process, and a *great* one for the amateur, is that it may be laid aside at almost any stage, and, except the few moments required for printing, it may all be done at night.

The tissue may lie sensitized a long time before using; there is no hurry to develop the sheets after printing; we have kept them ten days after being varnished, and after going through the first pressure they may be kept until you are ready to wash them, and after washing they may hang for weeks, until you are ready to make the second transfer, and receive no damage.

One soon learns how to print properly, the ability to judge of the negative and the light, only being required. We have exposed thin negatives fifteen seconds in the sun, and very dense ones, seventy-five seconds (never more than seventy-five); and with excellent success.

Work carefully and you will succeed.

Mr. Nelson K. Cherill, one of the contributors to our excellent contemporary, the *Photographic News*, gives his experience in carbon printing, in a late number of that journal, from which we condense a few ideas below. He recommends, as a sensitizing solution, one part of a saturated solution of bichromate of potash and one part of water. With us, he thinks the best time to prepare the tissue is in the evening before it is needed for exposing, and that it may be kept several days after being sensitized, without spoiling, though the longer it is kept the longer time it takes to soak. He immerses his prints in cold water (60°) to soak before development, and then puts them in water, at about 80°, to finish, and keeps the prints face downward. He considers it unnecessary to dry the prints before putting on the gelatine solution; merely drain them an hour or so, then coat them, allow them to remain flat a few moments, and then hang them up to dry.



For pressing, he uses a screw-press, and considers it better than a roller-press, and more certain. One good hard squeeze is considered enough to make any carbon print stick.

Collodion, poured on small prints, gives them an albumenized effect, but it is not so pleasing on larger ones.

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### THE ZENTMAYER LENS.

*Fact and Enthusiasm vs. Error and Misquotation.*

BY PROFESSOR HENRY MORTON, PH.D.

I HAVE just read, with no little surprise, and such interest as is consequent upon that emotion, a letter in the last number of this Journal, wherein Mr. C. B. Boyle lays claim to the prior invention of the world-famous Steinheil and Zentmayer lenses. As a reputation for enthusiasm, in defence of what is true and right, in the diffusion of valuable information, and the correction of error and misrepresentation, is the object of my highest ambition, I shall not be deterred by the warning of the above writer, but shall proceed *enthusiastically* to throw upon the present subject, the light of certain facts and arguments, by which I hope to prove very conclusively as follows:

1st. I propose to show from Mr. Boyle's own statements, in the above-mentioned letter, that he is, at the present time, so entirely ignorant of the true theory of the Zentmayer lens, that it is simply impossible that he should have formerly devised, or could *now devise* any such combination, but that his claim must reduce itself to this: that he at some past time, in the course of experiment, *put together* lenses in a form in some sort resembling the combination *designed* by Mr. Zentmayer.

2d. I propose, then, to prove that this chance combination in no sort impairs Mr. Zentmayer's claim to priority, because the compound so produced has no resemblance, in essential and valuable features, to Mr. Zentmayer's lens, but simply in general form; and was acknowledged by Mr. Boyle and his friends, to be worthless and inefficient, while that of Mr. Zentmayer is fully

successful and perfectly effective, in those very particulars in which the other most thoroughly fails.

This will settle the claim of priority advanced by Mr. Boyle, and explain pretty well why the Patent Office did not listen to his suit. He may claim a date two years prior to that of Mr. Zentmayer, but it will be simply the date of his *failure*, and not likely to impair the credit of Mr. Zentmayer's success.

1st. As to Mr. Boyle's present and actual knowledge of the theory of Zentmayer's lens, and the consequent possibility of his having invented it. In the first place, he does not even seem able to describe accurately the lens which he claims as his own. His words and his drawing are totally inconsistent. He says (this Journal, p. 324): "The back lens is precisely like the front one in everything but size," and gives a drawing of two lenses, which are alike in no single point except that of being meniscus lenses. According to his verbal description, there could be no possible resemblance between the two forms, and we will therefore assume that this is an error, and that the drawing is correct, in some measure, as elucidated by other parts of the description. We then have lenses related as 1 to 9 in diameter and curvature, giving an aggregate very short focus (judging from the picture taken), and a small angle.

So far for the actual instrument made by Mr. Boyle; next let us see about his theory; we will then be able to institute a comparison. In the first place, he points out that two equal prisms, if separated, will not correct each other, because the colored rays will only be brought parallel, and (a single point of the prism only being considered) a spectrum would result. This is obviously true in itself, but as obviously misapplied in the present case.

Mr. Boyle is evidently unaware of the fact that a prism may become, according to his own phraseology, "more powerful," *i. e.*, have a greater dispersive power, by being inclined to the incident ray, without a corresponding change in its refracting action. Yet in this he will find that "broad comprehensive exposition of the principles of achromatism involved in the

combination under discussion," which he has watched for with such interest, but has somehow overlooked in Mr. Zentmayer's able article, published last August. (See this Journal, p. 253.)

Again, he says: "If the lenses are not of equal power, then the figure suffers distortion." Now we have not here the time or space to expound the conditions of no-distortion, but must leave the matter with these two *facts*.

Mr. Gardner, of Washington, with one of Zentmayer's combinations of 18-inch focus, made with lenses of decidedly unequal power (2:3), has copied a map of the most delicate character, covered with straight lines. The prints of this,  $18 \times 26$  inches, we will not say are "mathematically correct" (we do not believe this of any lens, a certain advertisement to the contrary notwithstanding), but show no error to any test which can be practically applied.

Mr. Boyle's theory, in this respect also, will therefore stand in need of some little development, before it will reach as high as Mr. Zentmayer's lens.

Again, on page 326, Mr. Boyle shows us, by Fig. 3, what he considers a serious cause of error in the Zentmayer lens, but, is evidently quite unaware that he is describing the cause of that old complaint, astigmatism, which is avoided in the Zentmayer lens above all others, by the fact that the differences in thickness are exceedingly minute, and that the rays transmitted are normal to the surfaces.

In view of these considerations, we think our first count may stand, and that Mr. Boyle is not in a condition fitted to make him the inventor of Mr. Zentmayer's or other like combination.

2d. As to essential resemblance between the lens of Mr. Boyle and that of Mr. Zentmayer. Mr. Boyle uses lenses of short focus and with a great difference in curves. Mr. Zentmayer employs lenses of long focus and but moderate proportions; and this feature is *essential*, since, by the reasoning given above, we find the one avoids precisely the errors which the other develops.

Mr. Boyle's lens produces pictures, by his own statement, "soft all over," and by his specimens not sharp even in the centre,

and of a small angle. Mr. Zentmayer's produces pictures sharp all over to the very edge, and of immense angle.

Lastly, Mr. Boyle entirely failed in producing a useful lens according to his plan, by his own confession, by the evidence of his specimens, and by the repeated assertion of his friends at the time Zentmayer's invention was first published, these gentlemen having repeatedly asserted that Zentmayer's plan was worthless, because it had already been tried by Mr. Boyle, and abandoned as valueless and impracticable. On the other hand, Zentmayer was sure of his lens *before* it was made, and has produced an instrument of unparalleled perfection and efficiency.

In one word, Mr. Boyle tried to produce a correct view-lens with one kind of glass, and (for want of the requisite knowledge of the true conditions involved) *failed*.

Mr. Zentmayer, with a thorough knowledge of the subject, undertook the problem, and *solved it*. We are sorry for those who fail, but surely must give the credit to those who succeed.

Mr. Boyle, in his letter referring to a statement of mine, says: "I understand it to mean what it said." That, I reply, is exactly what it did mean, and what I did and do mean, but not in the least what he, by an entire misquotation, has put in my mouth. I said: "I saw lately some excellent pictures taken with one of Zentmayer's lenses, in which the stop was  $\frac{1}{8}$ th of the focal length." (See this Journal, June, p. 182.) He quotes me as saying that "the Zentmayer lens will make an excellent picture with a stop  $\frac{1}{16}$ th the focal length." The relation of these two expressions may be well illustrated as follows: I say, "I saw a young bear that was graceful;" he quotes me as stating that "the bear, when young, is graceful."

Any amount of honest criticism I will endure with patience, but misquotation I do most "enthusiastically" detest, and I would suggest to Mr. Boyle, that unless he wishes a reputation for something much worse than "enthusiasm," even in his eyes, he had better be more careful in his quotations, and not turn special statements into general assertions.

The picture referred to, as shown by Mr. Osborne, was received from me with the express statement that it was a very bad specimen of its kind. This statement, I know, was repeated to Mr. Boyle, and the use made of this matter argues a want of *enthusiasm for truth*, for which I should be heartily ashamed, but, no doubt, temperaments differ.

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### TO THE READERS OF THE PHOTOGRAPHER.

THE season of the year is drawing near when we are beginning to look forward with a great deal of interest, to know how many of our present list of subscribers will not only give us their encouragement and patronage during the coming new year, but how many of them will endeavor to obtain us new subscribers among their friends and acquaintances, whom we cannot conveniently reach.

The *Philadelphia Photographer* will enter its *fifth year* with the January issue for 1868. Since the first issue, words of encouragement and approval, with friendly advice and counsel, have come to us from all directions; but we believe that, during no one year have we received more gratifying, unsolicited, and unexpected assurances of approval as to the usefulness of our Journal, than we have received during the year that is now drawing to a close. These words of kindness are assuredly very encouraging, and we always feel grateful to those who send them; they go far towards making their Journal a good one, for when we find out that our subscribers are pleased, and think that good is being done them, and that they are getting the worth of their money, we endeavor to make them *more* than pleased, and to give them *more* than the worth of their money. But the object of this notice is to enlist the special interest of every one of our readers *now*, in extending the circulation of the *Photographer*. You can all do *something* towards it. We do not expect a large list of *new* names from all of you, but we do think that all of you have it in your power to do us a little good, if it is only to speak approvingly of the

Journal to your friends. Every time you do this, it will be a favor to us. We also ask you to read our new Prospectus on the cover, and to make an effort to secure some of the premiums. *Now* is the time when your kind offices will do us the most good. The first of the year is the time to subscribe. If you cannot get a subscription for a year, take it for six months.

It is important to us both that our Journal should be in the hands of every live photographer in the land. It is not read by one-fourth of them yet. We know of some who are not disposed to respond to this call. There are those who receive the *Photographer*, who read and enjoy it secretly, but they never speak of it to a fellow-artist when he comes to see them, or they go to see him. If they did, he would know as much as they do, and be able to make just as good work, and that would *never* do. This is not the right spirit. If you are an earnest photographer, and a lover of your art, desiring to see it progress and attain a high position, you should do all in your power to attain that end. One great step towards that end would be to have the *Philadelphia Photographer* in the hands of all the craft, and you ought to see after it, not for *our* good, but for the good of the art itself, and of those who represent it.

Our effort during the coming new year shall be to improve our Journal, and to make it better. More care shall be taken in the selection of our pictures, and, to begin the year, we hope to present our readers each with a specimen of carbon printing. That to be followed with specimens from the negatives of the best artists at home and abroad.

We would also call attention to the importance of our proposed series of papers on Art Principles Applied to Photography. We humbly hope that they will be useful and do much good. We shall spare no pains to make them so, and to fill our pages with matter more practical and useful than ever.

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Wipe out your holder frequently when you are operating, to prevent stains.



## LANDSCAPE PHOTOGRAPHY IN GERMANY.

It was while I was travelling for my health, which had become much enfeebled in this country, that I made the acquaintance of the leading member of a photographic publishing firm in Hamburg, who offered me the charge of a photographic expedition through the Dukedom of Mecklenburg. I accepted, thinking that a useful employment while travelling was even better than travelling alone. The Dukedom of Mecklenburg consists principally of large landed estates, owned partly by the Grand Duke, and the balance by a wealthy nobility, the people living and working on these estates being but little better in condition than the serfs of Russia. The object of the trip was to take negatives of the castles, parks, and other points of interest. To me, as a republican, the tour was of considerable interest politically, as well as photographically, for it gave me an opportunity to see the working of a system of government almost as absolute as feudalism. But let me return to its photographic character. Our "rig" consisted of a well-constructed dark-wagon, the fore part of which resembled a buggy, for the operator and the driver; the after part is the dark-room, which is furnished with two benches lengthwise—developing being done in a sitting posture on one side, and the bath and sink are on the opposite bench. The seats are hollow, with divisions to hold bottles, &c. The entrance to the dark-room is through a door in the back like an omnibus. Besides, we had a tent of oil-cloth lined with yellow muslin, inclosed in a bag of oil-cloth to use in inaccessible places. This was strapped to the top of the wagon. The whole presented a very unique appearance, and excited the greatest curiosity among the village youth, the most of them following in our wake on our entry into the towns, doubtless in hopes of getting a gratis glimpse of the performing bears, which they supposed were hid in our travelling menagerie. Which one of us they took for the clown of the concern, I did not ascertain.

The cameras we had, were one double

combination (Derozy's make), with adjustable mounting like Jamin's, giving three changes of focus; a Triplet by Kruss,  $1\frac{1}{2}$ -inch diameter, about 10-inch focus; a Globe 8-inch focus  $1\frac{1}{2}$ -inch diameter; and a stereoscopic camera with two  $\frac{1}{2}$ -size tubes; but the latter I found almost useless, as sufficient distance for a good view could but seldom be had. The negatives we made were  $12 \times 14$ . The Globe lens did not cover the plate, the circle of light being about 11 inches diameter. Now let me remark here, that I found it a great drawback in the Globe as well as the Triplet, that to produce the best results, the smallest diaphragms have to be used, and that requires so long an exposure that the foliage is but seldom motionless. Many an otherwise faultless negative had to be rejected on that account. A minute's exposure was mostly required, both with the Triplet and Globe, to bring out all the details in the foliage in the foreground. Though the extent of angle of view is much less, the results with the Derozy meniscus were generally more satisfactory, 10 or 12 seconds' exposure giving ample time. I had frequent opportunities of trying my hand at what some London committee on dry plates considers the severest test in photography, viz., a white building with foliage in the foreground. The best way to solve the problem, I have found, is new bath and collodion, plenty of time, a weak developer, and redeveloping with silver and iron. For the latter purpose I use tartaric instead of acetic acid with the iron, as in mixing the two solutions the silver does not precipitate in the bottle, and render the solution muddy. Contrary to the assertions of some photo's, I have found *no* advantage in using more than a usual quantity of bromide in the collodion (I use 5 grains of iodide to 2 grains of bromide), to produce detail in foliage. When both collodion and silver bath are new, there is no difficulty, but the moment deterioration commences, the chemicals require more time and give harsher negatives. For interiors, where long exposures are required, I have adopted a plan which has worked very satisfactorily. I set a soup-plate, with a piece of ice inside the camera, taking care to have the ice small enough

not to intersect the angle of the picture. I have exposed plates half an hour without any drying in summer.

There are a great many small lakes in the country, and there is hardly a residence that does not present a water-front, which adds so much to a picture. Never did I see such fine trees—oaks, chestnuts, and elms of tremendous size; large old trees in their parks, is something the possessors are particularly proud of. There is a park in Drö-nuewitz, belonging to Count Hardenberg, nearly every tree of which is a botanical curiosity. The gardener grew quite enthusiastic as he led me about, giving a history of the more prominent ones. It was there that I felt the want of a pair of lenses of wide-angle for stereoscopic views.

We had taken in three weeks clear weather (being out about six weeks), 210 large negatives, besides a number of stereoscopic size.

The war of '66 then commenced, and for fear of being cut off from communication with my relatives, who live in Middle Germany in one of the Saxon principalities, I left the expedition to hurry back.

Though photographing landscapes is accompanied with much trouble, yet when the appliances are convenient, the labor is fully rewarded by a lot of successful negatives.

Respectfully,

St. Louis.

H. E. HOELKE.

### New Amendment of the Copyright Laws.

AN ACT AMENDATORY OF THE SEVERAL ACTS RESPECTING COPYRIGHTS.

SEC. 1. *Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled*, That every proprietor of a book, pamphlet, map, chart, musical composition, print, engraving, or photograph, for which a copyright shall have been secured, who shall fail to deliver to the Library of Congress at Washington, a printed copy of every such book, pamphlet, map, chart, musical composition, print, engraving, or photograph, within one month after publication thereof, shall, for every such default, be subject to a penalty of twenty-five dollars, to be collected, at the

suit of the Librarian of Congress, as other penalties of like amount are now collected by law.

SEC. 2. *And be it further enacted*, That every such proprietor may transmit any book, pamphlet, map, chart, musical composition, print, engraving, or photograph, for which he may have secured a copyright, to the Librarian of Congress, by mail free of postage, provided the words "copyright matter" be plainly written or printed on the outside of the package containing the same; and it shall be the duty of the several postmasters and deputy postmasters to give a receipt for the same, if requested, when such package shall be delivered to them, or any of them, and to see that the same is safely forwarded to its destination by mail, without cost or charge to said proprietor.

Approved, February 18, 1867.

N. B.—All copyright matter should be plainly addressed

"LIBRARIAN OF CONGRESS,"

"COPYRIGHT MATTER. WASHINGTON, D. C.,"

to insure its transmission FREE OF POSTAGE.

### NEW TONING BATH.

Stock-bottle No. 1 contains—

Water, . . . . .	15 ounces.
Pereyanide of Gold, . . . . .	15 grains.

Stock-bottle No. 2—

Water, . . . . .	15 ounces.
Phosphate of Soda, . . . . .	25 grains.
Bicarbonate of Soda, . . . . .	15 "

When wanted for use, take of—

No. 1, . . . . .	4 ounces.
No. 2, . . . . .	4 "
Water, . . . . .	20 "

Wash the prints, before toning, in two changes of water, but do not let them remain over three minutes in each water. Tone to a warm purple, then wash in pure water for three minutes only, and fix in—

Water, . . . . .	10 ounces.
Hypo-sulphite of Soda, . . . . .	1½ "
Bicarbonate of Soda, . . . . .	15 grains.

The prints should not, at any stage of

the process, remain in the same water too long, for, by long SOAKING, you will have hard, opaque, and lustreless prints, and, by short and frequent washing, brilliant and transparent tones.

J. H. HALLENBECK,  
New York.

## LEAF PRINTS, OR GLIMPSES AT PHOTOGRAPHY.

ALMOST a year has elapsed since the photographic public have been treated to a new book. The one bearing the above title has just been issued by Benerman & Wilson, and is edited by Charles F. Himes, Ph.D., Professor of Natural Sciences, Dickinson College, Carlisle, Pennsylvania.

Typographically, we seldom see anything more beautiful. It is printed in clean bold type, on fine, heavy, tinted, red-lined paper; bound in green cloth, gilt, and contains a beautiful photograph illustrating the text of the book.

The chief object of the work is to endeavor to awaken more interest in the art of Photography among those who are wealthy, and thus make its practice a favorite amusement and entertainment, and then, after securing this, to induce them to take more interest in making collections of photographs—in other words, to make photography fashionable.

Another object of the book is to encourage the admission of photography into our literary institutions, as a helper to the study of botany, &c. &c. To use the author's words in his preface:

"No one of the methods suggested for taking impressions of leaves for botanical purposes surpasses the photographic in beauty or accuracy, whilst it has an additional recommendation in the easy, interesting, and practical lesson in science that it may be made to teach, and the delightful recreation it affords.

"The practical study of science is beginning to displace the old method of simply burdening the memory with the dry, unfruitful, and consequently uninteresting facts of a text-book. A certain amount of practical work *by the pupil* has been added to the usual course of experimental lec-

tures, even in some of our best female seminaries. Facts and principles thus practically learned are retained by the memory, and suggest themselves readily when occasion demands, whilst the discipline involved in their acquirement is not accomplished by other branches of study, and enables the pupil to read more intelligently ordinary scientific treatises.

"No special application of science is better adapted to amateur pursuit than photography, as the number of all classes engaged in it in our own country and England shows. It requires little and inexpensive apparatus, and rewards ordinary skill and perseverance, whilst it presents attractive fields wide enough for the most acute investigation. By reason of the nice conditions and almost infinitesimally small quantities involved in its practice, it trains the mind to habits of close observation, of method, and of cleanliness, and familiarizes it with the most common chemical manipulations.

"These few pages are simply intended to direct the attention to the most salient points in the history, theory, and practice of photography—as a glimpse at, rather than an introduction to practical photography. They will serve to enable any one to read intelligently the more exhaustive works and the journals devoted to the art."

The details of the manipulations are so complete and so minutely described, that any one may work them without difficulty. After a chapter on the "Lesson of the Illustration," and a "Historical Introduction," comes the "*Manual*," which embraces the following chapters, all of which contain many things valuable to the most skilled photographer:

- Preliminary Remarks,
- Leaf Negatives,
- Waxed Prints as Negatives,
- Silver Process,
- General Outline,
- Paper,
- Salting and Albumenizing,
- Plain Paper,
- Albumenized Paper,
- Sensitizing,
- Fuming with Ammonia,
- Ammonio-Nitrate Process,



Exposure to Light,  
 Toning and Fixing,  
 Washing and Mounting,  
 Printing by Development,  
 Processes without Silver,  
 Ferriyanide of Potassium (Blue),  
 Bichromate of Potassa (Brown),  
 Removal of Stains,  
 Apparatus and Chemicals.

Each subject is treated with so much care, and thoroughness, and freshness, that the book is made very interesting and valuable to every photographer, and we look for a large sale for it. We hope that all of our subscribers will possess a copy. The work is as beautiful as it is useful, and the contents do great credit to the talented author. As he has done much for photography, and is interested in its sale, we hope he will receive the encouragement he deserves.

### VOICES FROM THE CRAFT.

IN our last *Voices*, Mr. C. S. German gave us his experience in using alcohol as an antidote for poisoning by cyanide, and mentioned that his symptoms were described in Napier's Metallurgy. We have found a copy of the work, and make the following extract from it:

"Poisoning by cyanide gives to the mouth a saline taste and scarcity of saliva; the saliva secreted is frothy; the nose becomes dry and itchy, and small pimples are found within the nostrils, which are very painful. Then follows a general languor of body, disinclination to take food, and a want of relish. After being in this state for some time, there follows a benumbing sensation in the head, with pains, *not* acute, shooting along the brow; the head feels as a heavy mass, without any individuality in its operations. Then there is bleeding at the nose in the mornings when newly out of bed; after that comes giddiness; objects are seen flitting before the eyes, and momentary feelings as of the earth lifting up, and then leaving the feet, so as to cause a stagger. This is accompanied with feelings of terror, gloomy apprehensions, and irritability of temper. Then follows a rushing of blood to the head; the rush is felt behind the ears with a kind of hissing noise,

causing severe pain and blindness; this passes off in a few seconds, leaving a giddiness which lasts for several minutes. In our own case, the rushing of blood was without pain, but attended with instant blindness, and then followed with giddiness. For months afterwards, a dimness remained as if a mist intervened between us and the objects looked at; it was always worse towards evening, when we grew very languid and inclined to sleep. Then we rose comparatively well in the morning, yet we were restless, our stomach was acid, visage pale, features sharp, eyes sunk in the head, and round them dark in color; these effects were slowly developed. Our experience was nearly three years.

"We have been thus particular in detailing these effects, as a warning to all using cyanide, but we have no doubt that, in lofty rooms, airy and well ventilated, these effects would not be felt. Employers would do well to look to this matter; and amateurs, who only use a small solution in a tumbler, should not, as the custom sometimes is, keep it in their bed-rooms; the practice is decidedly dangerous."

Napier particularly addresses those engaged in electrotyping, but his remarks quoted here may help some poor fellow-photographer to decide what is the matter with him, and to have a care to avoid the effect by shunning the cause.

A CORRESPONDENT complains that his results with the sulphocyanide of ammonium toning bath, recommended by Dr. Liesegang, in our January number, are irregular and seldom satisfactory. This has been the experience of all who have tried the method. The reason is, that sulphocyanide of ammonium varies a good deal, some lots being much better than others.

Dr. Liesegang's formula is as follows:

Chloride of Gold, . . . 15 grains.  
 Water, . . . . . 2½ drachms.

Add just enough strong solution of sulpho-ammonium to re-dissolve the precipitate that at first forms, with aid of a little heat. Add ¼ ounce sal ammoniac, and dilute to 1 quart.

IN reply to the Brother Photographer of R. I., who complained in your last issue of

cheap prices, and asks for a movement, on the part of photographers, to establish prices, I would say that such a movement could not be successfully made, because those who *do* make cheap pictures would not agree to such a proposition, for *only by cutting down on prices can they get custom for their inferior work.*

Photography, at the present day, stands on its own merit, and the people *do understand it*, so, if a photographer devotes his whole energy to his business, does superior work, stands on his dignity as a man, and demands a reasonable compensation for his labor, his price will be paid, and willingly too. A photographer should state his price, and *never* deviate, for, if he does, his customers will find that, by "jeweling," they can get their pictures cheaper, and, consequently, they will never be satisfied with the price, however much he may fall.

A word for your excellent Journal. Rest assured, I will never be without it again. I subscribed in 1864, but dropped it at the end of that year. The consequence was—aside from the valuable knowledge I should have obtained, and lost—I took into partnership the person advertised as a scoundrel in your March and May numbers, of 1866. You can imagine the result.

Fraternally,

A. MILT. LAPHAM.

DECATUR, ILL., October 7, 1867.

Mr. Lapham's ideas are very correct and forcible. We have always found, and have before stated, that those who make the best work and charge the most, are doing the most. Make good work, and charge fairly for it, and, no matter how many cheap squatters gather around you, you will eventually close them up and drive them away. We never knew the contrary to occur.—Ed.

MEZZOTINTOS.—*Mr. Editor:* In a previous number of your esteemed Journal, Mr. J. F. Ryder complains that, by buying the right to use my process, he was "sold."

Here are the plain facts. He wrote to me first, asking for a plain and mezzotinted print from the same negative, "that (as he wrote) I may properly judge of the merits," &c. They were sent to him. He answered *that he was delighted with the ef-*

*fect*, congratulated me on the discovery, and wished me to send him the license, C. O. D., for fifteen dollars. I informed him that the price was invariably twenty-five dollars. Finally he sent his check, and the license was duly forwarded to him. Lo! immediately he sent it back, demanding the return of his money, because *he "had done the same thing six or seven years ago."*

Of course, I would not comply with his modest demand.

His giving permission to all photographers to use my patented process is ludicrous enough. He might as well give permission to use *any other* patent. Wonder if there is *one*, amongst the intelligent readers of the *Philadelphia Photographer*, who will avail himself of *that* gracious permission?

CARL MEINERTH.

NEWBURYPORT, MASS.

#### FORMULA FOR COLLODION FOR MAKING INTERIOR VIEWS.

Alcohol, . . . . .	11 ounces.
Ether, . . . . .	5 "
Iodide of Sodium, . . . .	48 grains.
Iodide of Ammonium, . . .	48 "
Bromide of Sodium, . . .	48 "
Chloride of Magnesium, . .	48 "
Cotton, 1½ grains more to the ounce than for portrait collodion.	

Pure Spirits of Wood Naphtha, ½ ounce to 16 ounces of Collodion.

By using the above collodion, a negative can be exposed for thirty minutes without any of the usual defects which are caused by long exposure. A good plan is to wax the edges of the plate; by so doing, no silver solution gets in the corners of the holder to cause blotches, &c. &c. Vox.

To clean old negative-glass, take a wide-mouth bottle, put in it 1 ounce of rotten stone, 1 ounce of salt, 1 ounce of alcohol, ½ ounce nitric acid; then add water enough to make it about as thin as *cream*. With a piece of sponge tied to a stick, apply this to your glass, then take a piece of flannel or tuft of cotton, cover it with cotton-flannel, tie a string round it, and you will have a kind of pad; rub with this until all the rust is loose, then dry your plate with clean cloth,

and, my word for it, you will only have the experiment to try, to satisfy yourself that it is the only way to clean *glass*.

The best solution for silvering paper, that I ever used, is old negative silver-baths. I put them in a large bottle, 30 ounces of solution; add bicarbonate of soda enough to neutralize, 1 drachm concentrated ammonia, 20 grains loaf-sugar; cork the bottle up, leaving a small hole in the cork; or take a goose-quill, cut it off, and run through the cork. Expose it to the weather, both wet and dry, hot or cold, three, six, or twelve months, then filter; supposing it to be 40 grains to the ounce, add 5 drops C. P. nitric acid; float your paper thirty seconds, fume twenty minutes. I never have had any better results than this gives; therefore use your old baths in this way, and save boiling them down, and you will save time and money, and make better work.

J. A. GOLDEN.

ROSEVILLE, OHIO.

EDITOR PHILADELPHIA PHOTOGRAPHER:

I am pleased with the new Harrison Headrest noticed and illustrated in *The Philadelphia Photographer* for August, and feel disposed to "offer an amendment," perhaps a couple of them.

A *flat base* will not rest firm and solid, except upon a perfectly *flat floor*. If there is the slightest inequality in the floor—and there is very apt to be—the base, and consequently the whole support, will lack steadiness. The simple and obvious remedy is to make the base to rest upon three feet, say an inch high. It is a common experience with me, after getting a sitter in position, to be compelled to remove my flat base-rest, and substitute one of the tripod pattern.

Since the full-length figures have been in vogue, it has been discovered that tall specimens of the *genus homo* are by no means as rare as the makers of head-rests seem to have supposed. Out of a goodly number of rests of various patterns, I have not one which is as long in the shaft as it ought to be, by three or four inches. It is to be hoped that in introducing the new rest, this defect will be obviated.

From the illustration, it appears as if the

solid part of the rest was unnecessarily heavy. But it is to be presumed that any manufacturer will have judgment enough not to use half a ton of cast iron in making a crutch.

I suppose it is useless to expect New England manufacturers to equal the "excellent workmanship" of articles made in *Old England*, but it is not asking too much (is it?) to request them to give us shafts straight enough to slide in their sockets without sticking fast, and set the screws so the threads will hold, when the screws are turned to their proper place.

Respectfully,

AUG. LARCOMBE.

NASHVILLE, August 12th, 1867.

I HAVE noticed your remarks on redevelopment. How are you to get fine negatives without it, when you have to use your collodion very thin, and cannot in every case give the right exposure? What are you to do with a subject whose hair is light, and face yellowish-brown from exposure to saleratus winds, dressed in light blue homespun? Can you get along with him without redevelopment? How are you to manage babies when you cannot time them any more than three or four seconds, and even less, without redevelopment? What are you to do with tawny-colored Mexicans who want to look white, without additional development. I beg of you, when you sit in your editorial chair in Philadelphia, and denounce redevelopment, answer these queries before you maintain the point. I would like you to operate out here where there are four babies to the square foot for a few months. I think both you and Professor Towler would *cave* on the statement, that *redevelopment is an excuse for bad operating*. "Nuf ced."

C. R. SAVAGE,

Great Salt Lake City.

Our good friend must not understand us to say that redevelopment is *never* necessary. We know there are times when it *must* be done, but what we said was—and we mean as a general thing—that the *best* way to do it is not to do it at all. One will soon find himself getting into the habit of



it, if he begins it and is not careful, and the habit will grow on him as other bad habits do. The result of redevelopment is generally a harsh negative, and a great contrast between the blacks and whites. Light your sitter nicely, give a good exposure, and then, if your chemicals are in good order, you will find that redevelopment is superfluous as a rule.—ED.

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On the Comparative Merits  
OF THE  
**ZENTMAYER AND GLOBE LENSES**  
FOR COPYING.

DEAR SIR: I present the result of my comparison of the Zentmayer lens you kindly loaned me, with the Harrison & Schnitzer Globe lens, belonging to the United States Coast Survey. My result, of course, relates merely to the two particular lenses compared, and not to the classes of their respective constructions. Of the relative qualities of the two lenses in their respective classes, I know nothing of the Zentmayer, but presume it is a *good one*. The Globe, however, is not quite so sharp as another which I have used.

My first operation was to find the focal length of the Zentmayer, in order that its best possible performance might be obtained by having the plate always exactly in the focus. As I do not use a ground-glass in setting the camera, I will give this part of my work somewhat fully, in order that my conclusions may be open to fair criticism for pointing out mistakes or false judgments.

Having opened the largest aperture of the lens, I hold it in my hand opposite to the window, so as to get an image on the wall, of the most distant objects seen through the window, and on a rod mark the distance which the flange of the lens is from the wall when the image is best defined. Next, taking the flange from the lens, it is screwed to the camera-front; a plate is put in the holder, the shield drawn, and the holder adjusted to make the distance from the plate to the flange, that marked on the rod. The lens is then put in the flange, and a photograph made of the distant ob-

jects. A second photograph is made with the plate a little closer, and a third with the plate a little farther off.

Inspection of the three photographs, shows in which direction the focus lies, and it is thus pursued by making a photograph on each side of the supposed point, until two are obtained having the same degree of sharpness. Midway between these is taken as the exact point, the back of the camera is set to it, and the place of the back on the base-board marked.\*

The principal focal length of the lens is now evidently the distance from the glass in the shield to the outer focal centre, but the place of this focal centre is not yet known. I judge, however, that the diaphragm is near the optical centre of the lens, and taking the measure from the plate to the diaphragm on a rod, I use that as an approximation to the focal distance for getting the conjugate foci for a second setting of the camera. The back of the camera is next drawn out as much more as this last measure. The camera is set opposite a drawing, with the diaphragm at twice this measure, and from the drawing a photograph is made; a second photograph, made with the camera a little closer to the drawing, and a third one a little further off; the photographs inspected and successive positions of the camera taken, as indicated by the degree of sharpness exhibited by the various photographs, until the greatest sharpness is obtained as before at midway between two of equal definition. On comparing the size of the photograph obtained at the point of greatest sharpness with the size of the drawing, it is found that 1000 parts on the drawing measure 974 on the photograph; and, measuring the distance which the back part of the camera has been moved from its position for remote objects, it is found to be .5469 metres, which must be  $\frac{974}{1000}$  of the principal focal length, which is consequently .5616 metres. Now, moving in the back of the camera to  $\frac{1}{4}$ th of the focal length (.0702 metres) from the positions for remote objects, and marking the distance of the camera from the drawing on

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\* See the *Photographer*, No. 33, page 261, September, 1866.

a rod, the camera is moved six times the principal focal length further off, and successive plates made near this point until the best definition is obtained. And measuring the distance of the camera at the point of best definition, for  $\frac{1}{8}$ th size, from that it previously occupied, the lens is found to have a focal length of .5648 metres on the object side.

Having found the Zentmayer to have a focal length of .5648 on the object side, and .5616 on the image side, or, say, a mean focal length of .5639, and the Globe being already known to have a mean focal length of .5034, the relative focal lengths are seen to be very nearly as 9 to 8.

To test the Zentmayer for distortion of the image, I made a half-size copy,  $24 \times 24$  inches, from a drawing consisting of straight lines, forming a system of squares. The outermost lines on the copy had straight lines then drawn alongside of them to exhibit their form by comparison. In a length of .565 metres (say  $22\frac{1}{4}$  inches), on the copy the lines were found to be curved outward, at the extremities, .36 of a millimetre, or, say, just about the  $\frac{1}{4}$  part of the  $\frac{1}{16}$ th of an inch. The performance of the Globe is given in the United States Coast Survey Report, for 1863; and also in Seely's American Journal of Photography, for April 15th, of that year, in which it appears that in a reduction of a drawing of 32 inches to nearly 22 inches (say reduced to  $\frac{2}{3}$ ), the curvature of a line .5521 metres long, is .28 millimetres. Now, considering the distance of the photograph from the lens in each case, and the size of the photographs, the same in both cases, we have, in the Zentmayer, a distance of  $1\frac{1}{2}$  times the focal length  $.5616 + .2808 = .8424$  metres; and in the Globe, a distance of  $1\frac{3}{8}$  times the focal length  $.5032 + .3498 = .8530$  metres. The distances are seen to be very nearly the same, and as the sizes are the same, the light has the same angle in both, and the measure of the curvature is the expression of the relative qualities of the two lenses; the Zentmayer distorting only one-fourth more than the Globe.

In regard to the relative amount of light transmitted by the two lenses, I was very much interested. The Zentmayer, being

composed of non-achromatized meniscuses, saves the light lost by absorption in the negative lenses of the Globe, economizes in light by the use of thinner positives than answer for the Globe, and, probably, also saves somewhat by having less surfaces than the Globe. Of the whole amount of these savings, and of its value in working, I was glad to have an opportunity to inform myself. If the two lenses were set on the same very remote object, then independently of the quantity lost in transmission through the lenses, the "intensity of the light falling on the plates would be directly as the squares of the diameter of the apertures, and inversely as the squares of the focal lengths. I could not conveniently compare them on remote objects, but had to use them at short distances within doors, to make copies of drawings, and, alternately, instead of simultaneously. And in such use, the "lights" will obviously be determined by dividing the square of the aperture by the square of the distance of the aperture from the drawing, multiplied by the square of the distance of the plate from the aperture. To measure the aperture, I took the diaphragms out and laid the holes on the metre-scale, and moved them until coincidence of line and edge was obtained.

Zentmayer.	Globe.
.0182 metres.	.0210 metres.
.0123 "	.0175 "
.0114 "	.0148 "
.0084 "	.0120 "
.0075 "	.0095 "
.0057 "	

Setting the camera for a  $\frac{1}{8}$  reduction, and taking the conjugate foci for the distance from the aperture, and also for convenience taking mean focal length, then we have for the diffusion of the light in the Zentmayer, the square of 9 times 5639 multiplied by the squares of  $1\frac{1}{2}$  times 5639 (say, for brevity, 103); and, for the diffusion in the Globe, we have the square of 9 times 5034, multiplied by the square of  $1\frac{1}{8}$  times 5034 (say 65). The light in the Zentmayer is consequently diffused something more than  $1\frac{1}{2}$  times as much as in the Globe, and therefore, for their light to be equal (considering merely the focal lengths), the apertures must be inversely in the same propor-

tion (65 to 103). The Zentmayer aperture .0114, and the Globe aperture, .0095, nearly satisfy these requirements; and, multiplying the relative intensity of the lights by the squares of these two apertures, we have, for the Zentmayer,  $65 \times 12996 = 844740$ ; and for the Globe,  $103 \times 8925 = 919275$ . Comparing these two numbers, we find a ratio, 12 to 13, consequently, the Globe should work in one-twelfth less time than the Zentmayer, if the loss of light, in passing through the lenses, were the same in both. But, by experiment, I find that the Zentmayer will make a plate in eight minutes, where the Globe requires ten minutes.\* I may not have determined the time very accurately, for it is very difficult to compare plates for relative density, and the intensity of the light is continually changing. But I am satisfied to conclude that something over twenty per cent. of the light is lost by the achromatizing of the Globe. This indicates that of a Zentmayer and a Globe, of the same focal length and aperture, the Zentmayer would work in about one-fifth less time than the Globe.

To compare the two lenses for definition (sharpness), I made pictures of fine printing, of various degrees of reduction, in hopes of finding a point where one or both would fail to render the lines of the letters. I found, however, that I could not succeed in this, so as to make the differences between the two lenses obvious to a mere superficial examination. Here, from the very nature of the case, I cannot give measures of the performances of the two lenses, but must give my opinion only; this, I do reluctantly, for opinions depend so much on taste, and, you know it has been said, "there is no accounting for some people's taste," and so I fear to give my opinion, lest some one of different taste will differ from me in opinion, as to which of the lenses defines the better. By making photographs of one-eighth the size of page five, of Wilson & Hood's catalogue, and of a small card of pocket fire-alarm directions

for this city, printed in the type known as Pearl, I make out that the Globe renders the hair-stroke of the letters frequently, where the Zentmayer fails.\* By viewing these negatives against a strong light, with an achromatic of about one-half inch focal length, you will see the differences in the hair-strokes of the letters e in the card, and the border of the card, and in the dividing-bar of the fractions indicating the sizes of the cameras in the catalogue.

I had hoped that the superior light of the Zentmayer would enable it to make up for the inferior sharpness, by using a smaller aperture. But the next smaller aperture, .0084, is more than twenty per cent. smaller than the Globe aperture, .0095. I did not find, however, that with this aperture there was any perceptible diminution of the penumbra along the lines. And even with the next smaller aperture, .0075, the penumbra is so great as to present a marked contrast to the clear edges exhibited by the lines of the Globe. This mistiness which attends even the small apertures, is doubtless that due to the aberration incident to the lens independent of its aperture, being the "circle of confusion" produced by the thickness of the lenses, their distances apart, &c., and which opticians know to be the limit to the construction of large telescopes.

Of the value of the Zentmayer for views, I will not here give my opinion. I have not been able to give it a trial, and will leave its merits to those photographers who are more accustomed to making landscapes than I am. But I have seen that it performs so nearly as well as the Globe in copying, that nothing but the trial would convince me that its slightly inferior sharpness would exhibit any disadvantage in a view, for this would only give a very light softness. I also expect its superior light in many cases would enable it to obtain

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\* The performance of both these lenses are really wonderful, considering the *length* of focus and the minuteness of their productions. Lines of a width of from  $\frac{1}{500}$  to  $\frac{1}{1000}$  of an inch, are copied and reduced eight times, thus presenting distinct lines on the negatives ranging from the  $\frac{1}{4000}$  to the  $\frac{1}{8000}$  of an inch only

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\* That is, in-doors, with a collodion iodized with  $4\frac{1}{2}$  grains of iodide of ammonium and  $1\frac{1}{2}$  grains of iodide of cadmium (no bromide used), and a very acid bath.



much more brilliancy and penetration than the Globe.

Respectfully, yours,

GEORGE MATHIOT.

WASHINGTON, October 3, 1867.

### STAINS AND MARBLINGS ON NEGATIVES.

I HAVE read with much interest the various letters respecting these intruders, since I wrote to you some two years ago with the hopes of gaining some remedy; but, up to the present, nothing but conflicting theories have been mooted—one blaming brass hinges, some mahogany mats, and others the collodion, and even the nitrate of silver, but no one has yet blamed their dirty fingers, which, I think, are the most likely cause.

My suspicion will appear to have some weight in it when we reflect how we handle the extremely sensitive glass-plate. First, many of us hold it by the corner to collodionize it; and, if one's thumb should be warm and at all tainted, away goes the evil into the bath, and must act in various ways to injure both the bath and plate. But the *next* operation is the most fertile source of these marblings. While the plate is in the bath we make use of the few minutes in wiping our slide, seeing that our developing glass is clean and so forth; then, often without washing our hands, we re-enter the tent, lift up the plate, and seizing one corner hold it until we think it is drained sufficiently for the slide. Well, now, in this act we place our thumb and finger upon a vertical moving surface, and should the finger be in the least tainted, what can be more natural than that the liquid next it should be affected and run its course down the plate, settling in various parts, according to the moisture of the plate, when touched? Besides, we often finger the other corners while adjusting the plate in the dark slide, and so cause further mischief.

Most of us have found that these stains appear and disappear when no change has been made in the chemicals, &c., and occur more frequently in hot weather, which facts favor my suspicions.

If dirty or new carriers are frequently the cause of these stains, then unclean fingers must be offenders also; but we can prevent this evil by washing our hands before handling the plate, and when lifting it from the bath *keep it on the dipper* for two minutes, at least, before touching it. I have often thought some plan might be found for suspending the dipper and plate during the draining, and should any one have hit upon one, it would be of great service to know it. Silver-wire dippers could be more easily managed than glass ones. Personally, I prefer the latter for travelling, as it can be constantly kept in the bath.

Trusting that the true cause of these stains will be thoroughly sifted out and published, is the earnest wish of

Yours, &c., HENRY PIPER.

—*Br. Jour.*

### PHOTOGRAPHIC SOCIETIES.

HAD we the time and means, it would give us pleasure to act as a sort of photographic home missionary for a necessary length of time, and go about the country, organizing photographic societies in every city in the Union.

The more so, because we think the time has come when the progress and good of our art demand and require such a state of affairs. "Why so?" asks the unthinking operant. Simply because it is now so rapidly progressing that its every votary must keep well posted, or he will soon lag behind. A member of our Philadelphia Photographic Society said to us at its last meeting: "I find I must take your Journal, or I shall not know what is going on. Please send me the back numbers." He had been absent from the Society for some months, and until we showed him the specimens there, had never heard of Mr. Swan's carbon process. Several new improvements had been made in manipulation and apparatus, which, when mentioned, seemed to astonish and surprise him, though old and stale news to the more enterprising and active members of the Society.

Now, it is to prevent you and your neighbor from falling into such a Rip Van Win-

kle state of ignorance, that we advocate the organization of photographic societies wherever there is enough material to maintain them.

The Society will pull down your ignorance and conceit, but only to elevate you, and give you a right hearty push towards advancement and progress. Are you in difficulty? Bring it before the Society. Some fellow-member may have been in the same dilemma at one time, but having found a way out, will be there ready to communicate it to you. Do you wish to be informed upon any new topic of interest in the art? On the Society's table you will find all the photographic journals published to aid you. Do you wish to consult any authority upon any subject? In the library of the Society you should find all the books you need. Do you make any new discovery that will be of use to the fraternity? Go to the Society, and communicate it, and your fellow-members may aid you materially in bringing it to perfection. Have you made a nice view or portrait? Send one of your nicest copies to the Society, and if *not* equal to some there, it will stimulate you to try again and do better.

It is only united effort and generous rivalry that accomplishes anything. There should, in each vocation, be some headquarters, where its votaries may meet, compare notes, exchange ideas, and consult with each other, and in fact a mental exchange. Notice the effect and influence of them in our various mercantile lines. Hardly any branch of business now exists without its exchange, or its association, or its society. Should photography go behind, and one portion of the trade ever be ignorant of what the other is doing? Nay, but let the photographic community go to work and organize societies wherever there are enough to do so. Let not the small number that may be in any place be a hindrance. We have known some of the very best meetings to be when only a few were present. A better day seems coming. Cheer up, ye knights of the black art! You need all the light you can get to perform your dark doings to perfection. Your photographic society will enable you to get it. Organize! organize! organize! Let your

secretaries send us your minutes, and we will publish them gladly. Only let us have a photographic society everywhere, and some day a grand convention TO RAISE PRICES!

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## PHOTOGRAPHIC SUMMARY.

BY M. CAREY LEA.

ENGLAND.

*Morphine Dry Process.*—Testimony in favor of this process\* continues to accumulate. Some, however, have met with complete failure, which the editor of the *News* attributes to the use of an acid specimen of sulphate of iron, and advises that the operator should satisfy himself of the perfect neutrality of his iron. This may be especially well secured by the use of the double sulphate of iron and ammonia.

Considerable difference of opinion exists as to the best mode of development.

Mr. Fry has had invariable success with iron solution of 20 grains to the ounce, with a grain of gelatine in 10 ounces. Immediately before using, add a drop of a 30-grain solution of nitrate of silver. With a small single lens and  $\frac{1}{4}$  stop, forty seconds of good light were sufficient.

Many like an iron solution (either plain sulphate or double sulphate), with the addition of sugar candy.

As to the keeping properties, results have varied considerably, but the general tenor of opinion is, that they should be used within three days. After this, they rapidly lose their sensitiveness. It is stated that, with fresh plates, results equal to the wet process are got.

*Hot-water Process.*—This process is also becoming more generally practised; plates keep better than with morphine, at least one month.

Excite a plate in a bath acidulated with acetic acid, a drachm of acid to 6 or 8 ounces of bath, place in a vessel of *distilled* water for 2 minutes, remove to a second. Do this

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\* Sensitize in a bath acidulated with acetic (preferably) acid. Wash and apply a 1-grain solution of acetate of morphine, work in, pour off, and dry the plate without washing.

till all the plates are ready for albumenizing.

To the white of each egg add 12 drops ammonia and 5 ounces of water, shake well and filter through two folds of silk handkerchief. Pour this on the plates, working it up to the very edges. Then, after pouring off the excess, set the plate in a pan, into which has been previously poured enough boiling water to cover it. Slide into the hot water, sensitive side uppermost. Rinse off with distilled water. Such plates keep for months, and keep well *after*, as well as before exposure.

The best mode of developing was found to be with 3-grain plain pyro until details appeared, then a little 10-grain nitrate solution, to which a little citric acid had been added.—FAIRWEATHER, in *Br. Jour.*

*Intensifying Negatives.*—Dissolve 1 grain of chloride of gold in a pint of distilled water. After fixing and washing the negative, pour on a portion of the gold solution with a steady sweep, covering the plate. The color of the negative changes from grayish-white to slate color; repeat the operation if necessary. Use again and again till exhausted.

Mr. Ramsay, who proposes this method, thinks it much preferable to redeveloping with pyro and silver, or intensifying with bichloride of mercury. He remarks that negatives treated in this way show well as positives by reflected light.

[This method is not new (nor presented by him as such). It has been objected to as tending to lead to splitting of the film; whether this objection is valid, will require further experience to determine.]

*Mounting Stereoscopic Views*—According to an article in the *British Journal*, stereos are best cut three inches square, and mounted three inches from centre to centre, keeping the *nearest* objects in the foreground in each, equally distant in each.

*Glare in the Studio.*—Grashoff recommends the application of *starch-paste* on the plain glass of the studio, to soften the light. Prepare a lot of flour-paste, let it cool, remove the skim, and apply with a soft brush over the panes. If the layer proves, on drying, to be too thin, repeat the process. This application has the advantage that it

can be at any time removed with a wet sponge in winter, if the studio proves too dark in the dull season.

[I called attention, some time back, to the beautiful soft translucent film that starch gives on glass, and proposed to use it for affording a focussing surface. Grashoff has here found a new application for the same idea.]

*Tannin.*—Mr. C. Hubback works the tannin process as follows:

Collodionize and sensitize in a 32-grain bath; place in a well-bath of distilled water till the greasy marks disappear, then in a flat dish of common water for two minutes, then wash with a pint of water from a jug, drain slightly, place in a well-bath of 20-grain tannin solution. Dry on a hot-water tin.

To develop, first varnish the edge of the plate, then wet with equal parts water and alcohol, then apply a 3-grain solution of plain pyrogallie acid till all the details are out, then add silver to intensify.—*Br. Jr.*

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### Photography at the Great Exhibition of the American Institute.

BEFORE attempting any description of the fine display of the various branches of our art at this exhibition, it will be but fair to inform the reader that it is but a mere *attempt*, for no words of the writer can convey a just idea either of its variety, or its most decided merit. If any there be who think that the art has not advanced within a short space of time, then of such it can only be said, that they have not seen the specimens, which bear stamped upon them, progress, if not perfection. Messrs. Wenderoth, Taylor & Brown, of your city, make a most capital and excellent display, especially in large carbon prints and opalotypes. Of the large carbons it would be impossible to say too much in praise, they are all that can be desired; soft, round, yet brilliant, and of capital tone. The opalotypes are also worthy of the highest praise; the only pity is, that larger than whole size were not exhibited.

They also make a fine show of colored work, but which, in the writer's opinion,



must be named in every respect as second to that of Messrs. Huston & Kurtz, of this city. In this branch, viz., porcelain miniatures, the latter so far excel all others, as to place comparison almost out of the question. In one case Messrs. Huston & Kurtz display eleven of this style of pictures, which, taken as a whole, are absolutely faultless. Either of these eleven will bear the closest examination with a powerful magnifying glass, and scarce show the touches of the brush, so fine and finished is the work. In the centre of this group is that of a lady on a porcelain plate 12 × 16, which is exquisite; "'tis all my fancy painted her," surrounded by some six or eight angelic pictures of female loveliness, to see all of which at one time, is far more than the writer ever expects to have fall to his lot again; he lives in hope, however, and hopes that that hope may not be too long deferred. These were all painted by Kurtz, and do his truly gifted pencil full justice.

In the same case is the portrait of a little girl, looking through an ordinary picture frame; it is a gem of the first water, is deserving of close study, and will be sure to enchant all who give it the least attention, or careful examination. The carbon prints exhibited by the same gentlemen, are most capital, in great variety, and serve fully to prove to the most stubborn disciple of silver printing, that carbon, carbon alone, is equal to a proper representation of life-like pictures; their freedom from that objectionable dead white so common in silver prints; their great transparency of shadow; their consequent roundness, and withal great brilliancy, make them the very picture so long wanted by all progressive photographers.

In photo-sculpture H. & K. make the only display, and so far as it goes it is most creditable. Here we have General Grant sitting in his usual careless manner, imperperturbable as ever, and with his ever-constant friend the cigar between his fingers; indifferent to all about him; truly himself. Not far distant is placed the only Horace Greeley we know of, a likeness true to life; not forgetting his *well-fitting* coat, with collar turned up instead of down; to say

nothing of his pantaloons, or ever-present good-humored smile.

George C. Rockwood, of this city, makes the most varied display, and one which does him infinite credit. His large sized photographs on plates 26 × 42, prove conclusively that he is "marching on" and also, that he does not hazard hard work or great outlay, in his laudable efforts to be up to the times. The photo-medallions which he offers for inspection, are quite novel.

In making them he takes first a full face and then a profile portrait, and from these, by the aid of the pantograph, a bas-relief is produced. This may be cast in plaster, or electrotyped, at pleasure, and duplicates can be produced in any number, at a very low figure.

Imperial ivorytypes, which differ from the old ivorytype, by being colored only with India-ink, and made to adhere to the glass by the use of a thin coating of white wax, without the use of any gum or rosin whatever, are very good; for these he claims absolute permanency, having made them with success for over nine years.

The *Cartes de Horse* are most capital, being portraits from life, of the various trotters of the day, among which may be found the King of the trotting turf, Dexter

Beyond all doubt, the finest large silver print in the Exhibition is that of the "Good Samaritan," copied by the same artist from a plaster cast by Quincy Ward, Esq., and intended by him for a colossal statue for the Boston Common.

Messrs. J. S. Notman & Co., of Boston, and J. Gurney & Son, New York, exhibit a fine series of cabinet photographs, or, more commonly called, Imperial cards, which, for choice selection of surroundings and fine working of light and shade, with proper chemical effects, are, of their class, much in advance of any in the hall. These gentlemen are doing much to elevate photography, and deserve great credit.

The photographs on the Alabaster paper made by Follett & Johnson, your readers are familiar with, and all are ready to acknowledge its great value and excellence. To the colorist, it presents advantages not possessed by any other paper, and must,

ere long, be found in every gallery in the land where colored work is made.

The prints from paper negatives, by Mr. H. J. Newton, an amateur, prove not alone the value and excellence of the process as worked by him, but place us all under obligations to a gentleman who, by his skill, energy, and patience, has put in the front ranks of the art, a process not often used in this country; one known to exist, but not known to practice. As pictures for the wall, nothing can be better; for the hand or for the stereoscope, they lack that extreme sharpness or fine detail so essential for works of this kind. You have published his process, therefore any description at this time cannot be called for.

In a commercial point of view, the greatest advance is shown by the works of the American Photo-lithographic Company, in their photo-lithographs. This quite new art is destined to work, in some branches of publishing, a complete revolution; for instance, in the reproduction of such engravings as those of Doré. By it they can be produced in quantities, and so like the original as to defy detection, and at so low a price as to make its products a necessity to every publisher. In some instances they have placed the original engraving and their copy side by side, and, were it not for the marks of "original" and "copy," they could not be distinguished; this, indeed, marks progress, and progress is our want.

A fine lot of chromos from L. Prang & Co., Boston, are also to be seen, and well worthy are they of inspection.

Among the oil paintings are three which claim special notice: one by A. Bierstadt, of "Morning in the Rocky Mountains;" one by William Hart, of "Fall," with all its brightly colored foliage; and last, though by no means least, one by C. G. Griswold, of a mid-day scene on the Housatonic River, which, for foliage, crystal translucency of its water, and faultless drawing and coloring, equals the best in the Exhibition.

Did the writer's time and your space admit, much more could be said, but such not being the case, he makes his bow, and is, as ever,

Yours, truly, &c.

C. W. H.

## GERMAN CORRESPONDENCE.

*Landscape Photography—Landscape Lenses—Light-Effects—Precautions—Practical Matters.*

DEAR SIR: Not long ago a photographer called on me, who intended to devote himself to landscape photography, and asked for my advice. He requested to see my negatives. I showed them to him. He wanted my collodion formula; I gave it to him. He asked for the composition of my developer and intensifier, negative and positive bath; and when he had got all the information he wanted, he turned, with many thanks, to go. Suddenly he turned again with—

"Permit one more question,—What objective do you use?"

That depends on circumstances; sometimes one, sometimes another, according to the subject.

"I have heard that the Globe lens is the best for landscapes."

The Globe lens does very well in the right place, but is not suitable for all kinds of work.

"What do you think of the Pantascopic lens?"

What I said of the Globe lens holds good for the Pantascopic also.

"Well, then, what lens shall one take?"

I use for certain sized plates, a whole assortment of landscape lenses, Triplets, Globe lenses, Dallmeyer wide-angle, and Pantascopic. After selecting a view, I try which lens gives on the ground-glass the most pleasing picture; where a narrow field of view is sufficient, I generally take a triplet lens; where a wider field is preferable, I take a wide-angle lens, or, where an enlargement of the foreground is desirable, the wide-angle lens is best. Late-ly I took a sea-shore view with a small villa in the foreground. The villa, with the wide-angle lens, in consequence of the enlargement of the foreground, looked like a splendid castle; the whole picture gained by this, and if it was not exactly true, still it pleased more.

On the other hand, I once took a forest view. Through an opening in the trees

there appeared a brightly illuminated landscape, and this formed the principal charm of the picture; the foreground was a melancholy-looking meadow; all the lenses which I had with me exaggerated this foreground, while the charm of the landscape, the distant view, was lost; at last I tried a lens which was intended for pictures of twice the size and of twice the focus, and then obtained a picture that satisfied me.

The gentleman did not seem pleased with my explanation; he considered it too expensive; but you see what care is necessary in the selection of objectives. It would be folly to take a wide-angled lens for a picture with an indifferent foreground, which enlarges the foreground and diminishes the background; but it would be folly also to take a long-focus lens with narrow field of view for a beautiful foreground and indifferent distance. Of course, in matters of this kind, the good taste of the photographer is the only guide; distortion also has to be considered, and lenses which distort can rarely, if ever, be used for architectural objects.

Speaking about landscape photography, I will give you the result of some studies on the reproduction of some light effects, which form such an attractive feature in painted pictures. I have sent you a picture where the sunlight falls through the branches of the trees into a woody recess; the rays of the sun appear like mighty bands between the branches. In Paris, this picture was much commented upon, and most curious views, as to how the effect was produced, were expressed. Some contended that I had retouched the negative; others thought that I had made artificial dust-clouds, in order to produce this effect; both were wrong. I tried repeatedly to photograph the rays of sunlight which are so plainly visible in dust-clouds, but always without success. I presume the yellow color of the dust, which does not act chemically, is the cause of this. I was once in the park twelve hours after a heavy rain; the soil was damp, and the air moist. In this damp atmosphere I saw the rays of the sun most beautiful, not of a yellow, but of a bluish color; now I took a picture, and the rays of the sun

were fixed.\* At a later date I made further studies of this curious phenomenon, which I will communicate. This splendid light-effect is noticed when we look in the direction of the sun; less in summer, when the sun stands high, but frequently in spring and fall on damp days; here I have often taken advantage of it in taking interiors. In the open air it is often difficult to protect the lens from the direct rays of the sun.

Generally speaking, I do not consider midsummer the best time for taking landscape views, notwithstanding the energetic chemical action of the light. The high position of the sun gives too much illumination from above, and the finest landscapes appear very often monotonous. Only in the hours before nine in the morning, or after three in the afternoon, good results can be looked for. In the spring, fall, or winter, when the sun stands low, and the rays are more horizontal, penetrate through the branches, and give a side illumination, we may look for these magic effects of light and shade which are so pleasing. I have seen twice, the celebrated view from the Rochusberg, on the Rhine, once at noon; and then I found it horrid, and could not understand how they could make such a fuss about it in the guide-books. I saw it again in the evening, and the view has charmed me like no other on the Rhine.

Such striking contrasts express themselves, of course, in the photograph, and whoever will produce something excellent must study well all these things.

It seems, however, incredible what a difference there is in the chemical action of light, even with a perfectly clear sky, in winter and summer. Bunsen has determined that the intensity of light at twelve noon, on the twenty-first of December, is not more than at six and a half, evening, on the twenty-first of June.

It has been attempted repeatedly to photograph sunsets. I have made several pictures of this kind; one can recognize the sun, but the charm of a sunset-landscape is lost, and of the beautiful golden and orange-

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\* The picture is excellent, and the effect of light very perfect and unusual.—Ed.



colored clouds there appeared not a trace. A great drawback to these pictures is the central spot; this can only be avoided by discarding stops, and then we lose sharpness. With a Triplet I once got two suns instead of one; the secondary image was caused by reflection on the interior surface of the lens.

Now, some practical remarks on a photographic excursion extending through several weeks:

It happened to me this summer that my excellent collodion, after taking about ten pictures, commenced to show spots of a peculiar kind. Such a circumstance, on a trip where materials are with difficulty replaced, is very annoying. I tried to find the cause; everything was examined, but without success; at last I found it: the trouble arose from the plate-box; the grooves, by long use, had become soiled, and a polished plate inserted into it became soiled at the corners; the particles of fixing solution, which the wood had absorbed from imperfectly washed plates during transportation, were particularly injurious.

These impurities in coating the plates flowed back into the collodion bottle, and eventually spoiled it; since then, I do not return the collodion to the collodion bottle, but receive it in a separate one, when, after a rest of a week, it gives good results again.

While travelling, the preparation of the different solutions is a very tedious job; I use, wherever I can, a graduated measure in preference to scales. I have, for instance, a solution of pyrogallie acid: 1 part pyro to 10 of alcohol, which keeps for months. All I have to do is to measure a certain quantity, dissolve it with water, and this is my intensifier; a concentrated solution of nitrate of silver, 1 silver to 5 water, serves, diluted, as an intensifier, or also for strengthening the bath whenever it becomes weak and shows holes. For developer, I use the sulphate of iron and ammonia; this salt is very stable, its solution will keep for weeks, and it is not necessary to make it fresh every day. The photographer who is accustomed only to work in his laboratory, will perhaps ridicule all these precautions, but he little knows to what inconveniences the want of the merest

trifle sometimes puts the travelling photographer. I remember that I once had to travel four miles to get a pint of distilled water for the intensifier.

I have worked myself, in this letter, so deep into landscape photography, that I cannot stop now. I have often been asked how many plates I can take on an average, in a day. Mr. England, a very able landscape photographer, says that his largest number is three a day. I find this too many, and am contented if I get one good plate a day on an average. Of course, much depends on circumstances. In places that are familiar to me, and where I need not look long for a standpoint, or for proper light effects, or where several fine views are close together, I may succeed in making three or even four views a day; but, in a place with which I am not familiar, I generally spend the first day in reconnoitring. I select my standpoints, examine under what illumination I obtain the most effect, and after I have ascertained these points I start with apparatus and tent to take a picture.

Frequently it happens that the desired light-effect does not return. I may take a picture, but generally I return at some other time; and it has happened to me that I have visited the same spot half a dozen times before being successful.

The commercial photographer who has to furnish pictures by the dozen for the general public, will certainly not agree with me, and for small pictures, at a low price, it would not pay; but, where you want to produce plates of artistic value, the case is different.

Have you seen the splendid stereos by Breese, in England, where the waves dash against the rocky coast; and with flying scagulls and chasing clouds? Such pictures are not obtained at the first attempt. I feel satisfied that Breese, like a hunter, has been watching his chance many a time; he may have often missed fire, until at last he has brought down his noble game. For such pictures one pays willingly double and triple the ordinary price. Landscape photography and hunting resemble each other in many respects. We have many holiday hunters amongst landscape photographers, who

waste their ammunition on every sparrow, but never succeed in killing nobler game.

Yours, very truly,  
DR. H. VOGEL.

BERLIN, October 1, 1867.

### PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting of the Photographic Society of Philadelphia was held on Wednesday evening, October 2, 1867, the President, Mr. Coleman Sellers, occupying the chair.

The minutes of the meeting of June 5, 1867, were read and approved.

The Committee on Mr. Roettger's new Lens reported progress, and asked to be continued.

Mr. Tilghman explained that the reason why he supposed Mr. Rutherford to include terrestrial views as within the power of his lens, corrected by uniting the actinic rays alone, was the hope held out in the following part of his article in *Silliman's Journal*, May, 1865:

"The success of this telescopic objective has encouraged me to hope that an almost equal improvement may be made for photography in the microscope, which instrument is more favorably situated for definition than the telescope, since it is independent of atmospheric conditions. Its achromatic status is easily examined by the spectroscope, using, as a star, the solar image reflected from a minute globule of mercury. Mr. Wales is now constructing for me a one-tenth objective, which, upon his new plan, is to be provided with a tube so arranged as to admit of the removal of the rear combinations, and, in place of the one ordinarily used, one is to be substituted at will, which shall bring to one focus the actinic rays."

Microscopic photography may certainly be considered as terrestrial work. In another part of this article, Mr. Rutherford refers to the correction of our ordinary photographic lenses, and even some special ones made by Dallmeyer for observatories, as being "a mere compromise to convenience, in which the visual and actinic qualities are

sacrificed," thus encouraging us to hope that, with terrestrial lenses corrected upon more rational principles, we might obtain quicker and better work.

Mr. Sellers mentioned, as a matter of interest, that Dr. C. M. Cresson, of this city, having been engaged in microscopic investigations of fibres for paper-stock, had used an inverted microscope made by Mr. Zentmayer, and had found it very useful for the purpose, as the fibres could be arranged as they floated in water on the slide, a clear view being obtained through the thin glass-slide and through the flat surface of the water in optical contact with the glass. His specimen, so arranged and finally covered, could then be viewed with higher power than in the ordinary way. He had lately used this same microscope for photographic purposes, and had made very excellent enlargements from specimens actually floating in the water, or, at least, not subjected to any pressure from above; using, of course, low power. He was not aware that the inverted microscope had ever been used for photographic purposes previous to this experiment of Dr. Cresson.

Mr. Tilghman said that, in examining fibre in fluid, he had used the aquatic box, and that by twisting the cover he could move and separate the fibre by the grinding action of the thin glass cover.

Mr. Wenderoth exhibited some beautiful specimens of carbon printing on tissue, made by himself.

On motion of Mr. Graff, the following resolution was unanimously adopted:

*Resolved*, That the thanks of the Society be tendered to Mr. Wenderoth for his exhibition of carbon prints, and the interesting description of the process employed, and that the Society express their gratification at the wonderful perfection of the prints exhibited, and the promise they give of permanency and artistic perfection in printing from ordinary negatives.

Mr. Wilson exhibited a number of views made by Mr. Charles Bierstadt, with Busch's Panorama lens, of Niagara Falls; time of exposure, six seconds. Many of the prints showed fine cloud effects, and were much admired, although a want of sharpness was noticed in all.

Mr. Browne presented a print made with a Zentmayer lens,  $5\frac{1}{2}$  inch focus, smallest stop, 40 seconds exposure; taken from Hoboken, New Jersey; showing New York in the distance. The great sharpness of both the foreground and distance, was remarkable.

Messrs. Wenderoth and Wilson kindly offered to show and explain to the members, at the next stated meeting in November, the entire carbon printing process.

On motion adjourned.

JOHN C. BROWNE,  
Recording Secretary.

## Salad for the Photographer.

**HOW TO DRY PRINTS.**—Take square pieces of deal-board and cut out the centres, leaving about two inches margin. Over the openings paste two sheets of blotting pad or heavy tissue paper. Lay the prints between these in layers, and they will keep slightly damp for some time, yet dry enough to mount. This is Mr. Notman's plan.

**TO PREVENT STAINS ON THE NEGATIVE.**—Mr. A. Henderson, Montreal, adopts the following plan to prevent stains on the negative, caused by unclean holders: Slip a strip of red blotting-paper under the lower edge of the sensitized plate as it is placed in the holder, and let it rest against the back of it. The blotter will absorb all the superfluous solution, prevent capillary attraction, and save many a troublous stain and many a retake.

ALL photographers know the difficulty of obtaining sufficient time upon children's pictures, but very few practise a simple and effective remedy. *Heat the developer.* I usually turn up the edges of a quarter-metal plate, so that it holds just sufficient for one development, and then heat it over the gas. I frequently have obtained a picture by this means in ten seconds. True, it will lack softness and depth, but what can you expect from a child who *will not* sit still.

H. J. FELLOWS.

ALBANY, N. Y.

I HAVE read Mr. Lea's paper on "Marbled Stains," with a great deal of interest, especially as I have been troubled too, this summer, with such stains on my negatives. I got rid of them by placing a piece of ice

near the bath, so as to lower its temperature to 40° or 50°. I am also careful to keep the plate-holder clean, and wrap a wet cloth about it while carrying it to and from the dark-room.

ROBERT BENECKE.

St. Louis, Mo.

**COLLODIO-BROMIDE PLATES.**—"I have always found it best to have near me a two-grain-to-the-ounce solution of bromide of ammonium when developing. So soon as I see fog coming, I wash off, and pour on this bromide solution as a wash. Then wash off, and the next step is wonderfully advanced on continuing the development and all very clean and brilliant."—*Cor. Br. Jour.*

**RAPID PHOTOGRAPHY.**—A thief with \$25,000 dollars, was caught by the aid of photography in England, lately, in less than a week after he absconded.

**PHOTOGRAPHERS** in Arkansas arrange the sitter, and then point a loaded pistol at him during the exposure. Instead of the usual "Right still now!" the terrified subject is told: "Move now, and I will blow your brains out!" The picture is always an *expressive* one.

**WHITE PASTE.**—A good paste, pure in color, and adhesive to all surfaces, is said to be made as follows: A solution of  $2\frac{1}{2}$  ounces gum arabic in two quarts warm water is thickened to a paste with wheat flour; to this is added a solution of alum and sugar of lead, 720 grains each in water; the mixture is heated and stirred about to boil, and is then cooled. It may be thinned, if necessary, with the gum solution.—*Photo. News.*



**RESTORING OLD COLLODION.**—Make a saturated solution of cyanide of potassium in water; add of this from 4 to 8 drops to 16 ounces collodion. In a few minutes the free iodine will be absorbed, and the color change to a pale yellow, or about a good working color; and if the collodion be not over three months old, it will be found to work equal to fresh prepared; but, should it be much older, say a year or more, as much as 1 to 3 drops of the cyanide solution to each ounce will be required to decolorize it. With very old collodion it will be found necessary to add more cotton and a little more iodizing to bring it back to a working condition.

J. CARBUTT,  
Chicago, Illinois.

**PHOTOGRAPHY AND POETRY.**—We occasionally find poetical talent among photographers of a rare nature! An itinerant photographer in the State of New York, issues a circular of a very persuasive kind, and ends up with seven verses of unsurpassed and irresistible eloquence! The following are specimens:

"In these days as you all well know,  
Pictures and albums is all the go;  
Hardly a parlor in the northern land,  
But what there is an album lying on the stand.

"Now in order to have those albums look fine,  
They must be filled with pictures of your's and  
Catherine's.

Now in order to pay my board, light, and rent,  
I will take three pictures for fifty cents.

"So now come along, all those who have time,  
And get a picture taken when in your prime;  
No pains shall be spared to make them look  
fine;

So now just come in sleigh-loads and have a  
jolly time!"

The spelling and rhythm are the author's.

Our correspondent who sends us this precious production truly says, "Here we have the combination of a 'true artist and poet.'"

*The American Journal of Photography* says, Dr. W. Hooper gave directions, in his "Rational Recreations in Natural Philosophy," in 1787, "how to print letters by sunlight," and that Wedgewood and Davy applied the action of light upon silver salts to

producing images in 1802. This is not by any means the earliest photography though. If our correspondents will turn to their Bibles and look at Ezek. 6:4, 6, they will there find "images" spoken of, which we are told in the margin by commentators, mean "*Sun-images*."

**HINTS FOR THE TOURIST—Filters.** In order to save the carrying of filters for filtering iron solutions, &c., use a piece of unbleached calico of fine texture. When done with, wash it, rough dry it, and put it away until again wanted.

*Acetic Acid.* It is worth remembering that a substitute for this chemical may be found in sulphate of potash and common white sugar, mixed together.

*The Bath.* When this gets saturated with ether and alcohol, precipitate the silver with carbonate of soda in excess on a filter. Well wash the same five or six times in common water, then the last time in rain or distilled water. Now pour into a measure the original quantity of water that your bath was composed of, and add thereto one or more drachms of pure nitric acid. Pour this on the filter containing the washed precipitate, and let it filter through until *nearly all* the precipitate has been dissolved. The test for strength, adding fresh crystals of nitrate of silver if necessary. Now test for acidity or otherwise, and proceed as usual.

*Distilled Water.* When away from home in the wilds of Wales or Scotland, this necessary article is difficult to obtain, and when obtained it is seldom pure. As a substitute, take the purest river or spring water you can procure and boil it; now add to every ounce a quarter-grain of nitrate of silver, allow it to stand; and, when cold, filter. This will meet every requirement.

—*Br. Jr. of Photo.* W. H. WARNER.

**SHAMEFUL.**—We were in a dark-room a few weeks ago, the floor of which looked like a stable. It was literally covered with old frames, mats, and other rubbish, and the water running over it sole deep, and yet the benighted owner was working in it daily. He promised to clean it out.

## OUR PICTURE.

Not content that our readers should only see work made at home, we made arrangements with Messrs. Loescher & Petsch, of Berlin, Prussia, to print a portrait for one of our numbers, and the picture in the current number is the result.

Although it is not perfect in every way, we may learn as many good lessons from it, probably, as we could were it more perfect. The composition and arrangement is very fair, though the lighting is not as successful as many other specimens we have seen

by the same artists, and in this we are disappointed. The studious reader must study the picture and try to excel it.

We are the more willing to concede now that, especially in the new cabinet size, our own home-artists are not only fully up to many of them, but far ahead of anything we have seen from artists abroad. This should encourage us, for two years ago we could not say this much. Continue to progress then, and next year we hope to give you some exquisite gems. We have received no letter concerning these prints, from Loescher & Petsch, as yet.

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## Editor's Table.

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**PHOTOGRAPHIC MOSAICS FOR 1868.**—Encouraged by the wonderful sale of this little book during the past two years, the publishers and editors are preparing the 1868 Mosaics with great care, and hope to make it much better than the others. Ready by first of December.

**DR. VOGEL'S PHOTOMETER FOR THE CARBON PROCESS.**—Dr. Vogel is about securing Letters Patent for his photometer, in the United States, and in our next we hope to give our readers a drawing and further description of it. It is promised to be a great help in ordinary printing also.

**ELECTION BY PHOTOGRAPHERS' ASSOCIATION.**—The regular annual meeting of the San Francisco Photographic Artists' Association was held last month, when the following officers were unanimously elected for the ensuing year: President, Silas Selleck (re-elected); Vice-President, Daniel Wright; Treasurer, J. C. Chalmers; Secretary, James E. Van Court; Trustees, William Shew, D. H. Woods, William Dickman, Scott Tidball, B. F. Howland, Jacob Shew, Thomas Houseworth, J. C. Chalmers, W. H. Towne.

**MR. J. STEHMAN,** Lancaster, Pa., to whom we are indebted for two or three little "wrinkles," sends us carte specimens of a process he claims to have invented for printing pictures. They are much the same as the ordinary plain background pictures, except that he secures a halo around the figure (invariably a bust), which gives a very pleasing effect. For the present he withholds the process, though we imagine it is done by double printing.

**GURNEY'S CABINET PORTRAITS.**—No one has taken hold of the new size with more earnestness than Messrs. J. Gurney & Son, New York. They determined in the beginning that they would make it a success, and they have most certainly done so. Not only have they made it a popular picture, but they are making some most excellent examples of photography, as a number of their pictures before us testify. They are very successful in securing pictures of little Misses and Masters, and sit them in lovely childlike positions. They deserve great credit for the manner in which they have taken hold of the new size, and we trust the enterprise of all who follow them will be as liberally rewarded. No one can go wrong who follows them in their excellent work, as our readers shall have an opportunity of seeing in a few months in the picture they are printing for us.

**CORRECTION.**—Captain Arthur G. Morvan is the inventor of the new transfer process we described in our last issue, and not Mowan as our types made us say. We hope soon to present our readers with a specimen of work by his process.

**MR. D. HOVEY,** is the manufacturer of the albumen paper used for August and September prints, and not William D. Hovey as stated.

The old established galleries of Messrs. Chas. D. Fredericks & Co., New York, have been purchased by Mr. Hugh O'Neil. Mr. O'Neil has so long been connected with the operating room of the concern that we can say nothing that is not known of him. Now that he has sole

charge, more care than ever will be taken to make the work all it should be.

THE FAIR OF THE AMERICAN INSTITUTE.—No doubt many of our readers treated themselves to a visit to the fair of the American Institute, New York, which we noticed in our last. We embraced an opportunity, and shall not soon forget it. Through myriads of people, washing-machines, fish-hooks, a pneumatic railway, looms, machines, potatoes, bedsteads, flowers, and what not, we wandered until we reached the pianos, and then the photographs. We there saw some of the best and most beautiful, and some of the *worst* photographs it has ever been our pleasure to see. They are graphically described by our obliging New York correspondent, Mr. Hull, whose letter will be read with interest. We need scarce repeat here that we are very glad to see such exhibitions of photographs, and believe they do much good. We are strongly in favor of having a grand *National Photographic Exhibition* in our city or elsewhere next year, where all could contribute their work, and where all could come and examine that of others. It would accomplish an immense amount of good, and we hope our readers will discuss the subject, and act upon the suggestion.

PHOTOGRAPHIC FURNITURE.—It is now about a year ago, since we first broached the subject of the new cabinet portrait in these pages. Slowly but surely the idea was taken up and worked upon, and presently some really elegant specimens of photography came to our hands, showing that talent *existed* among us, and only wanted something to awaken and develop it.

As soon as the new size began to grow in favor, a want was felt for proper furniture as accessories to make the new portrait, not only a new *size* but a new *style*. Anticipating this Messrs. E. & H. T. Anthony & Co., New York, proceeded to manufacture something that would be proper and pleasing. How far they have succeeded may be judged by an examination of their photographs of their various styles in the current number. It will be observed that we have there a piano, writing-desk, book-case, &c., &c., all beautiful and perfect, and yet so made that they may all be closed up into one piece of furniture, and take but little room. The pictures will show how many changes are possible. There is no end to them scarcely. Much credit is due to the manufacturers for their pains taken in getting them up.

A FEW weeks ago we noticed having received some elegant cabinet portraits from Mr. Charles Reutlinger, 21 Boulevard Montmartre, and 112 Rue Richelieu, Paris.

Since then we have received another installment, which really seems to out-do Reutlinger himself. For graceful, artistic, and natural posing, for skilful lighting, for beautiful chemical effect, and for every other good quality which we look for, hope for, and try to get in a portrait, these seem to excel.

They are as near perfect photography as any one has yet attained. Although there are over a dozen of them, there are only two subjects,—Miss Adalina Patti and Madame Oliver,—in different positions and dresses, and all good. Any one by careful study can succeed in getting *one* good picture of a subject, but Mr. Reutlinger seems to succeed in all. True some are better than the others, but *they are all gems of art*.

We are endeavoring to make a selection from them for a number of our Journal for next year, believing it would be selfish to deprive our hosts of subscribers of so much pleasure.

A carte of Miss Patti, with the above, is most perfect and beautiful, and no wonder such pictures carried the large medal at the Paris Exhibition.

A MONTH or so ago one of our Yankee subscribers sent us a badly focussed, badly posed photograph, asking us to send him in writing our "honest, candid opinion of it." Believing that he was sincere, we granted his request, hoping that it would be taken as kindly as it was given; but alas! like many of those who invite candor, he became angry when we gave it to him, at his own request, and the following is his reply:

"I consider that you are biased, or that your judgment is not good in regard to the photograph I sent you, and if I be allowed to judge by your laudation of the photograph on plain paper, published by you some time since, it must be the latter. Perhaps you were hired to 'puff' the paper and 'artist.'"

We shall, in mercy, withhold his name, and beg him to read Proverbs 14:32.

As to his "perhaps," he is entirely wrong. Neither he nor any one else can purchase or "hire" any remarks in this Journal. We *give* to all who are worthy.

THE YELLOW FEVER has carried away two of our photographers in New Orleans, Messrs. McPherson and Johnson, and two others are



down with it at this writing, but we hope they will be spared. Mr. S. T. Blessing, stockdealer, our informant, has recovered from the fever, but lost one of his assistants.

STEREOGRAPHS RECEIVED. — From Mr. F. J. Chute, Melrose, Massachusetts, we have received several views of the interior of the new Masonic Hall in that city. Considering the limited quantity of light to be obtained in such places, they are remarkably well done, and a great credit to the artist. The four sides of the lodge-room are equally well taken; the frescoes on the wall showing wonderful relief even without the glass. A view of the outside of the hall and several other local views, prove Mr. Chute to be a nice, clean, and careful worker. He is also good at portraiture, which he verifies in the slide No. 4, illustrating that ancient story of childhood:

"There was an old woman that lived in a shoe,  
She had so many children she didn't know what to do,"

wherein there are no less than thirty babies, all quiet and unmoved.

VIEWS IN AND ABOUT QUEBEC.—Our visit to this ancient, crowded, dirty city upon a hill, will never be forgotten. We are surer of this when we have the series of interesting stereos sent us by Mr. Hugh McCorkindale, 39 St. John Street, *within*, Quebec. First, we have St. John's Gate, through which we entered the walled city, and the newest of all the gates; then the old Prescott Gate, Mountain Hill; Hope Gate; St. Louis Gate; Palace Gate; The Champlain Steps; Pres de Ville Terrace; Col-de-Sac Terrace; Mountain Hill; The Citadel; Martello Tower; Wolfe and Montgomery Monuments; Quebec from Point Levis; Point Levis from Quebec, &c. &c. These are followed by an excellent picture of a *caleche* (so suggestive of pain), and one of those quiet, *fast* (to one place), ribby nags, for which Quebec is celebrated; several views of the Natural Steps, on the Montmorenci River, and an excellent view of Montmorenci Falls from below. When our readers visit these falls, we would recommend them to secure the services, as guide, of the deaf-mute, half-breed girl who will come out and run behind their *caleche*, as they approach the Falls. She is much more efficient than the naughty, ragged boys and girls who offer their services, and who pretend they cannot speak a word in English. Above the Falls are the remains of a suspension bridge, concerning which we were given the following information on a piece of paper, by our

guide, and which we begged from her. We copy literally: "Thay Falls is 2 hundred and forty feet high when tha brige fell tha war 3 parsens Drowned and a hors all so A tha all fell down to gather." Many thanks to Mr. McCorkindale.

STEREOSCOPIC GROUPS.—From Messrs. G. H. & W. E. Pollock, 95 Liberty Street, New York, we have received a few life-groups, which are as decidedly original as they are excellent. They are so perfectly *natural* that they are charming.

The "Burial of the Bird" represents a group of sorrowing little children with the corpse of the departed pet in a mimic leaf-twined hearse, at the grave performing the burial ceremonies.

"The Umbrella Cottage"—a group of little rustics, with their baby toys and miniature furniture seated under an umbrella. The rabbit-pen, with the earthen milk-pans on top, the old thatched cottage, and the garden in the background, are accessories carefully and capitably managed.

"Going to a Party,"—a little damsel all dressed, and on her way to a juvenile tea-party. She seems pleased with herself and with every one else.

"Deceiving Grandma,"—a boy and girl measuring their heights: Master Freddie standing on tiptoe with his back to honest little Katie, in order to make the aforesaid Grandma think that he is the tallest. It is good, but Freddie is bad.

"The Attack" has but one figure in it, and he is a host. He is a broth of a boy, with all his earnestness bent upon a plate of hash. All the accessories of an old-fashioned country kitchen are here in capital disorder and artistic confusion.

"The Defeat" is the same, only the hash is all eaten, the coffee-mug overturned, and the over-crammed boy lying back asleep.

These are accompanied by some excellent views of Niagara Falls, and of a number of the most beautiful monuments in Greenwood Cemetery, all capital pictures of difficult subjects. The views of the gateway are grand.

APRIL NUMBERS.—We are in special need of April numbers of this Journal for this year. 75 cents per copy will be paid for them, with or without the pictures. We want all we can get.

SPECIMEN PHOTOGRAPHS of various styles and finish, from life-size to 4-4—suitable for any gallery—may be had upon reasonable terms by applying to

WILSON & HOOD,  
626 Arch Street.





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NOTMAN,  
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MONTREAL, C. W.



T H E

# Philadelphia Photographer.

Vol. IV.

DECEMBER, 1867.

No. 48.

## PHOTOGRAPHIC HINTS.

BY M. CAREY LEA.

*Photographic Utensils.* — Photographers have almost daily occasion to remark, to their cost, that those who make the utensils with which they work, seem to be absolutely ignorant of the uses for which they are intended. It would be exceedingly fortunate for photographers if those who made their vessels had occasionally need to use them, and so learn how inconvenient they are.

I propose in these lines to point out a few of the shortcomings to which I allude, in the very faint hope that they may meet the eyes of some one who may think it worth his while to act upon the hints, and so give us something better in the respects with which I particularly wish to complain.

Why are gutta-percha dippers so constructed that, in the hands of persons not very careful—say in those of an assistant—they punch out two semicircular holes from the film, besides twisting and wrinkling it in a way, that with very delicate work sometimes extends for an inch or two into the plate?

Glass dippers would be the best of all, if one could get them of a good pattern. But they are made of glass-rods bent in the blowpipe flame, and so badly annealed that they shiver with a careless man, and are only fit for practised manipulators.

Why is it impossible to get glass pans deep enough? This is an intolerable nuisance, and is especially vexatious with the smaller sizes. Is it imagined that a shallow pan works with less nitrate of silver than a deep one? Because if it is, the idea is a thoroughly mistaken one. On the contrary, these wretched little shallow pans tend more to waste the silver by occasional tiltings and splashings.

Why is all the porcelain used in photography so wretchedly bad? I suppose because photographers are willing to buy the trash which is offered, and do not discriminate between the qualities. I need scarcely say that this results in encouraging the worst sorts in the market. The enamel is too thin to keep the silver solution out of the porous biscuit which forms the body of the vessel. The vessels made for chemists' use are of first-rate porcelain, probably because they will accept no other.

Why cannot we have India-rubber vessels and pans of a better quality, and if the rubber *must* be vulcanized, why cannot the excess of sulphur be thoroughly removed by liberal use of caustic soda?

Why will not somebody devise and produce a thoroughly good form of metallic camera, so as to get rigidity, freedom from warping and cracking, lightness, and smallness of size? With a metallic camera, the size for whole plates need not exceed 7 x 9,

instead of being over 10 inches square, as now.

*Cleaning Stains on the Hands.*—I do not remember with certainty whether the facility with which pernitrate of mercury removes these stains, has been pointed out before or not. It does not seem to me likely that it can have escaped observation, and yet I do not remember to have seen it pointed out. The action seems to be as energetic as that of cyanide of potassium.

Although the acid pernitrate of mercury cannot be considered quite as objectionable as cyanide for such applications, still, its use ought to be accompanied with great circumspection. All these solutions are easily absorbed through the cuticle, and it would be idle to affirm that the fingers can be exposed to their action with any certainty of impunity. A curious incident occurs to me in proof of this.

A French manufacturer found that he could, with the greatest facility, reduce metallic lead to a fine powder by simply pouring it, while melted, into a horizontally revolving drum—the centrifugal force scattered the lead in fine spray, which congealed to a light metallic dust. This dust dissolved with most convenient facility in acetic acid, and promised to be of great importance in manufactures. But the lead-salts obtained in this way solidified in masses in the barrels, and had to be broken up with sledges.

In doing this work the men were liable to be splashed, which simple external contact produced results which the manufacturer himself described as "frightful."

Those who are in the habit of unnecessarily immersing their fingers in poisonous solutions in the idea that the skin is competent to resist their action, may learn from this what is the danger that they run. If all the mischief done in these ways were directly and clearly traceable to its cause, carefulness would soon be acquired. But the effect of poisons thus taken into the system in small doses at intervals, is slow and gradual, and unless it assumes some well-marked type, is apt to be ascribed to any cause rather than the true one.

*Vertical and Horizontal Baths.*—Few who

have tried both of these forms of baths, but prefer the vertical, there is so much less danger of getting lines from slight pauses in the covering of the plate by the solution.

And yet the horizontal bath has a marked advantage over the other form. A plate sensitizes in it much more quickly and loses the greasy lines much sooner than in the vertical bath.

Nor does this seem difficult to account for. The silver solution can only penetrate the film by displacing the alcohol and ether which it contains. These last are specifically much lighter than water, and therefore they tend to rise. With a horizontal bath, the alcohol and ether rise easily and quickly to the surface, but, in the case of a vertical bath, each stratum is in the way of all that are lower than it. Thus the sensitizing must complete itself by setting up currents and then drawing up fresh portions of sensitizing solution. The difference is striking, and must, I think, have become evident to all who have worked with the two baths in comparison with each other.

*Red Paper Behind the Plate.*—This is an improvement which seems to have great difficulty in making its way. Photographers are not to think that, as they habitually get clean sharp negatives they have nothing to gain by taking a new precaution, and disbelieve, practically if not theoretically, in the whole theory of internal reflections.

It is perfectly true that, in a great many cases, unexceptionable work can be got without this precaution. Every line seems clear and sharp, and all is as satisfactory as the maker cares to have it.

But then will come a negative in which some one particular object will look as if it had moved during the operation. It is known perhaps, that it is perfectly impossible that that object alone should have moved, and as everything else, perhaps, is clean and sharp, he knows that his camera has not moved. He feels extremely puzzled, and willing to take pains, and desirous of making good work, he tries the subject again and perhaps several times, but always with the same result. He gives his attempt up in despair, concludes to rest upon a nega-

tive which he knows was a blemish, but one which he does not know how to avoid, and concludes is some way in the nature of the thing and unavoidable. He does not know that he has been troubled with a case of *blurring*, and that a simple bit of red paper would have instantly cured it, if applied moist behind his sensitive plate.

For example, I was lately shown a photograph of some machinery. It was, in most respects, exceedingly well done, everything bright, sharp, and clean. But a part of the machinery consisted of a pear-shaped vessel of bright glittering steel, highly polished. This appeared in the print with one side entirely undefined, a little smeared as it were, and extended outside of the proper boundary of the vessel.

This was a well-marked case of blurring. The reflection from the steel was so bright and white that it had been reflected back from the second surface of the glass, upon the back of the sensitive film with sufficient strength to make a strong impression, and destroy the clear outline of the part that had produced it.

It is then for such cases as this that the paper application is most needed, and I think generally it may be said that in all those cases where there exists a brightly reflecting and strongly illuminated surface, there internal reflection is to be dreaded, and the paper application becomes advisable. Multitudes of cases will suggest themselves to all who read this, where their work might have been improved by this simple means. Nor have I the least doubt that a part of the want of definition so often observable in *water*, whether level or falling, is owing to blurring or internal reflection.

The same is also true with intensely white buildings, and in general those subjects, whose presence in a picture forces the photographer to hasten his exposure more than he otherwise would wish, lest he lose all detail in them.

Let no one be deterred from applying the wet paper, because he has none *red* at hand. Red is certainly the normal color for use in such cases, but I have shown elsewhere that the color has much less to do with the effect than might be supposed, and that the true function of the paper is simply to keep the

back surface of the plate wet, thus letting out the rays that would otherwise have been reflected back to the film. And I have shown that there was every reason to anticipate equally good results from the use of white paper; in fact, that by throwing colored reflections from blue glass upon a white wall, we could not only render the internal reflection, the cause of the blurring, perfectly visible, but could measure the efficacy of the means used to prevent it, and that the application of wet white paper to the back destroyed the internal reflections as far as the eye could judge, as completely as the red.

Therefore, I repeat, let no one be deterred from applying the wet paper, because none red may chance to be at hand. Any soft paper wetted and applied is far better than none.

## ART PRINCIPLES APPLICABLE TO PHOTOGRAPHY.

### II.

*Education of the Eye—Measurement—Form—Perspective—Lines—Diminution—Angles—Circles.*

IN bringing before our readers the principles contained in this and following chapters, we would now, at the outset, acknowledge our indebtedness for many of the ideas, examples, and illustrations, to writers such as Ruskin, Burnet, and others, who have written more at length than we purpose to do on such topics, our primary object being rather to introduce to your notice well-defined principles of art, that by their study you may be able to discern the truth and beauty of nature, and apply the same in your every-day practice of photography. However desirable it might be, that photographers should be good draughtsmen, it would, we think, be expecting too much to hope, for all who begin the study of art with the reading of these papers, to do so practically with the pencil, yet we do hope that all who do not do so, will at least accompany us mentally.

As we proceed, *correctness* should be one of the greatest considerations. If the eye is allowed to fall into a loose, imperfect



method of study, it will be found very difficult to rid one's self of it. If we desire to read properly we must first carefully learn our letters and how to spell correctly.

The first proceeding then, towards teaching the eye, is to measure the distance between one object and another. The forms of the lines which bound these spaces, the shapes contained or excluded by such lines, ought to follow, for, as the eye must have something tangible to work upon, it ought to be simple and evident.

Commence by a series of dots, first two, then three, four, and five; also the angles made by drawing lines from each several point. Make one series of dots and lines, and then endeavor to make another exactly like it, using a compass to compare the correctness of the second with the original.

As all forms contain more or less portions of a triangle, square, or circle, the eye must be taught to comprehend and imitate such objects in their simple forms, in order to fit it for the purpose of seeing such qualities when mixed and combined with more complicated figures. It would therefore be a good plan to draw from a cube and a ball, that the eye may become early accustomed to draw from real objects in place of flat surfaces. This will give a *power* in drawing from nature unattainable by any other method. The camera-box would be a good model for the one, and in the absence of a ball use the lens or a jar or some similar object.

After *measurement* and *form* come the lessons of *perspective*. Very many have been deterred from attempting to learn the art of drawing from the dread of encountering so formidable a department of the art as perspective. Many again having no such fear, think it an easy accomplishment, and make quite as great a mistake in proceeding as those do who turn back affrighted. Dr. Johnson has remarked that "*divide and conquer* is a principle equally just in science as in policy." The great secret of all success is not to attempt too much at a time. The greatest achievements are the result of oft-repeated effort, and perspective will be found a very simple matter and easy of comprehension when we strip it of its geometrical and mathematical intricacies.

Perspective, as the word denotes (being a compound of the Latin words *per*, through, and *specto*, to view), is the act of drawing the several objects as they appear when placed upon a glass or transparent medium; the art of drawing in perspective, therefore, is nothing more than representing the various objects subject to those laws which regulate their appearance in nature.

*Lines*.—All lines are subject to an alteration in their appearance except two, a horizontal line and a perpendicular one; and lines are more or less diminished in their length as they depart from the parallel of their base line; for example, if a person hold a pencil or a stick parallel with the eyes, and slowly turn it around, he will see it gradually become shorter and shorter until it assumes a mere spot, when it is placed with the point directly towards the eye, as it then covers what is termed the *point of sight*, which is a point immediately opposite the observer's eye, and upon the horizontal line, which is always of the height of the eyes of the spectator; and as it is turned round it will describe innumerable points along the whole line. These are termed *accidental points*, and vary according as the lines run more or less at right angles from the base line.

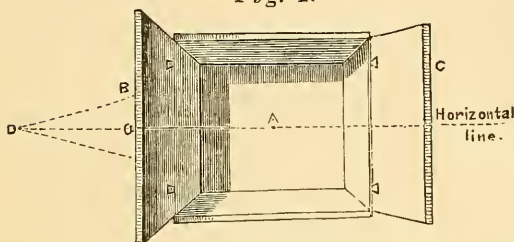
Lines also vary according as they are situated above or below the observer's eye; for instance, if a book is held up horizontally before the eye, the under cover will be seen when held above, and the lines of its sides appear to run down to a point on a horizontal line. When underneath the eye, the upper cover will be seen, and the lines describing the sides appear to rise up to the horizontal line.

The truth of this may be also clearly proved by holding up a piece of glass on which a series of lines have been drawn radiating from the centre; for, by looking through it up a street, avenue, or long room, it will be perceived that those lines which are at right angles with the base line fall in with, and cover, many of the lines so drawn on the glass; for, as they are run to the point of sight, they will of necessity converge, since the spaces between them diminish as they recede from the spectator.

Before proceeding further, for the better

understanding the several lines already mentioned, and showing how they are affected, permit us to give the following explanatory figure:

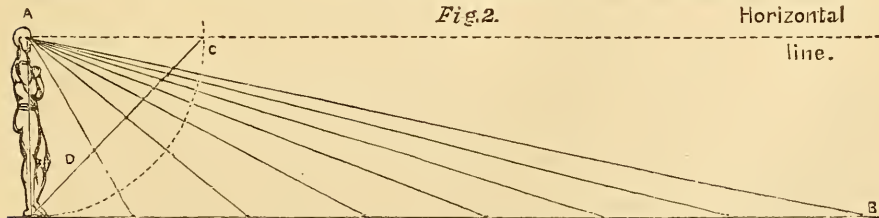
Fig. 1.



Let the above represent an ordinary fumig-box with folding doors, which we will consider photographed properly for our purpose; being placed immediately before the eye, the sides appear to rise and descend to the point of sight, A; also the door, B, from its being opened at right angles with the base line; while the lines of the door, C, appear to run to the accidental point, D; this point will vary its situation according as the door is more or less opened, which explains what are termed accidental points.

*Diminution.*—All objects diminish in size as the spectator departs from them; hence two parallel lines seem to approach each other as they recede from the eye; and this diminution will appear more or less sudden according as they commence from a near point or from one more removed. For example, if the hand is held near the eye, it will intercept a larger space than when held out at arm's length.

Objects diminish in an increased ratio until removed to a certain distance, when the diminution appears less violent. This may be made apparent by the following diagram:



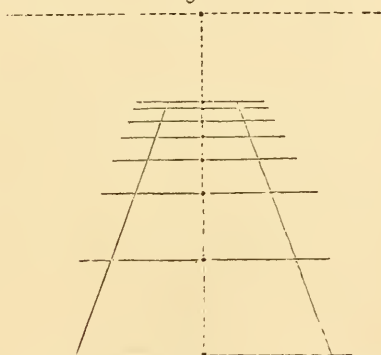
Let the line A represent the spectator, and the line B represent a line of pavement;

the circular line C, which cuts through the visual rays, as they approach the eye, will show the diminished ratio as the squares become more distant; and, as they have to be represented upon a plain surface, their proportion will be as the divisions on D; they will therefore present the following appearance to the eye (Fig. 3).

When, therefore, objects are commenced too near, they appear out of proportion with the other objects in the work; and, although true according to rule, appear

false with regard to their effect upon the eye of the spectator. This is termed violent or sudden perspective, to avoid which a point of distance is chosen that will look agreeable. The breadth of the squares being determined by the diagonal line running to

Fig. 3.



the point of distance where it cuts through the lines of the pavement, which run to the point of sight, the farther this point is removed the more level the ground will appear, as in Fig. 4.

*Angles.*—What has been said more im-

Fig. 2.

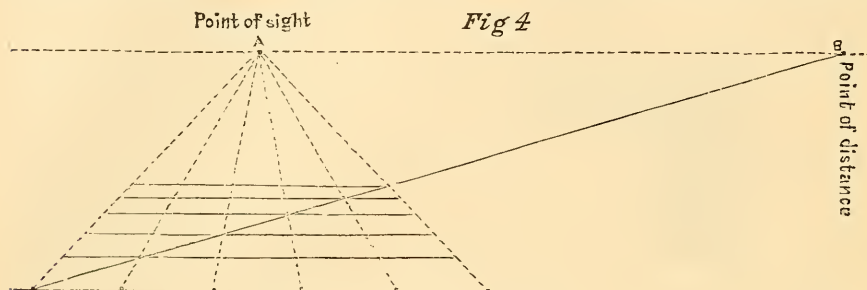
Horizontal  
line.

mediately applies to *parallel* perspective; so named from all the lines which intersect

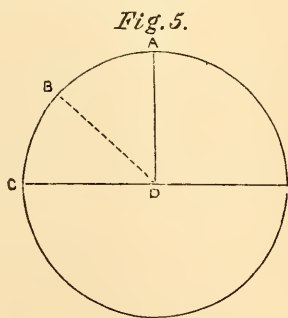
those running to the point of sight being parallel with the base line.

When, however, a square or any cubical

with the base, being at right angles with A, and consequently occupying one-fourth of a circle; but if he turned in the direction

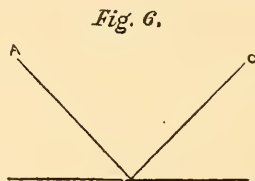


form is viewed at the angle, the two sides will not appear to vanish in the point of sight, but run to two points on the horizontal line, called vanishing points; and this mode of treating the subject is called *angular perspective*. Now these two points are always at an equal distance from each other, which is one-fourth of a circle, therefore if one is determined upon the other is easily found; for as one departs from the point of sight, the other appears to approach it, as one may perceive by turning round a sheet of paper or a book from a situation where one side is parallel with the base line until it is viewed upon the angles; the cause of this may perhaps be more clearly explained by the following:



Suppose the circle to represent the line of the horizon, which is the true representation of it when viewed out at sea, or where no obstructions intercept it, for then the water coming in contact with the sky, presents a circular horizontal line. If a person, therefore, was placed at D, and looking to the point A, the line c would be parallel

of B, then A and C would become vanishing points, though still at equal distances upon the horizontal line, and would appear thus:



In a panorama, which is a circular canvas viewed from the centre, this mode of measuring the various points is found to agree perfectly with the natural representation of objects.

*Circles.*—If any one takes a drinking glass or cup in his hand, with the mouth of it towards him, and gradually turn it from him, carefully watching it passing through all the elliptical forms, until the brim becomes a straight line in appearance, he will have a correct idea of how it is that columns, or other circular objects, assume an oval shape at top or bottom, according as they are below or above the eye. Or if he holds the cup with the side downwards and turns the mouth gradually round towards him, he will see why arches or circular gateways appear elliptical in a side view. It arises from parts of the circle being more foreshortened than other parts; that is to say, those parts which come more in the line of the visual rays. This can be readily illustrated with your lens tube.

(To be continued.)



## STEREOGRAPHS, AND HOW TO MAKE THEM.

BY J. Q. A. TRESIZE.

It is scarcely necessary at this late day, and in the present state of the photographic art, to discuss the *merits* of the stereoscopic picture; and although what I have to say is not new, and may seem superfluous, yet there may be some to be benefited by a brief statement of a *few* of the *general* principles of stereoscopy, and the easiest method of making stereoscopic pictures. This subject is doubtless familiar to the great majority of the fraternity, but perhaps not to all.

A well-defined idea of the forms, solidity, and distances of objects is obtained *only* by the aid, or through the medium, of *two* eyes. A person with but one eye cannot estimate or appreciate these qualities with the same accuracy and satisfaction that the one with two eyes can.

If one would answer as well as two, but one would have been created, for Divine Wisdom never errs, or creates anything without a use.

To prove, in a simple way, that two eyes are required to estimate distance, &c., let there be a projecting point, as a pencil held perpendicularly by another person; now, without having previously looked at it, close one eye, and, while looking at the end of the pencil with the other, raise one hand high and bring it down rapidly and perpendicularly with the end of one finger upon the end of the pencil, and observe the liability of failure.

Admitting, then, that two eyes are necessary to *see* objects correctly in all their relations of solidity, &c., it follows that a *single picture*, which is taken with a *single* lens, or tube of lenses, falls just as far short of *truly* representing the object as does the *single eye*.

The *idea* of solidity, form, and distance, or stereoscopy, is the result of beholding objects from *two different stand-points*; or, in other words, from there being *two different and distinct* images formed upon the retinae of the two eyes, and these two images being *superposed* upon the sensorium, combining their properties into one.

In looking at solid substances, singly or in groups, one eye beholds objects and parts of objects that are not seen at all by the other at the same time.

This may be illustrated by looking with each eye alternately, the other being closed, at a distant object, with a near one intervening, as the finger held between the eyes and a window-sash; and the near object will seem to move from side to side as the eyes open and close alternately, revealing objects in the distance, and parts of all the objects seen with each eye alternately that are not seen by the other at the same time, and some not at all. Also the light that reaches each eye from the *same* surfaces approaches it at *different angles*, and hence forms distinctly images upon the two optic nerves in their termini.

Now if we can "bottle up" for future use this *same* light wrought into images at these same relative angles, and spread it out at pleasure, in the same manner and arrangement, upon the nerves of the eyes respectively, we shall have succeeded in securing the means of *virtually* looking at the objects themselves at any time in the future without their actual presence. This is all done in the stereoscopic picture, as revealed by the stereoscope. The use of the latter is not only to *magnify*, but its *chief* use is to *present* these two images to the eyes in their proper relations, that each eye may look at the picture designed for it *only*, and not see the other at all. Some persons can do this without an instrument. They have the power of diverging the axis of the eyes and directing the right one to the right hand picture, and the left one to the left.

Now it is not so much the object of this paper to describe the stereoscope, or explain its phenomena, or to discuss questions in optics, as to *recall* the attention of photographers to the *importance* of the stereograph and a few hints as to how to make it.

In imitation of nature, the stereograph must be taken from two different stand-points representing the human eyes, so that the images would be formed by rays approaching the lenses at the same angles as would the rays on their approach to the eyes at the same points of vision.

Very few eyes are less than 24, or more

than  $2\frac{3}{4}$  inches apart. Hence the stereoscopic camera should have two tubes of lenses mounted about the same distance apart. It is conceded that about  $2\frac{1}{2}$  to 3 inches is the best distance. "Stereoscopic effect," or *relief*, is sometimes sought after by placing the lenses farther apart. But such "relief" is only exaggeration and distortion. This may be proven in the following manner:

Place a table on which to rest the camera at sufficient distance from a subject, say a gentleman, seated square before it, to show two-thirds length. With a pencil at one end of a cord, the other end being held in the teeth of the subject, draw a part of a circle on the table, the subject's face being the centre. When the cord approaches each side of the table, draw a line *along* the cord, which will be a part of the *radius* of the circle. Let those two lines be, say, two feet apart. Now place the camera with its *centre* on one of these radii and the back end *to* the circle, and take a picture; then move it to the other side of the table and take another in like manner. When mounted stereoscopically they will show distortion to an astonishing degree.

The distance from the knee of the subject to his body will seem to be greater than his whole height.

Camera boxes and lenses, made for indoor or outdoor stereoscopic work, can be had of any stockdealer.

Any box that works a plate  $3\frac{1}{4} \times 6\frac{3}{4}$ , or  $5 \times 7$  inches, and any *pair* of good lenses of equal focus, either  $\frac{1}{6}$ ,  $\frac{1}{4}$ , or  $\frac{1}{2}$  size, will answer the purpose, either indoor or out.

It is scarcely necessary to say that *any* camera that will make two pictures at a time, side by side, from  $2\frac{1}{2}$  to 3 inches apart, and cover a plate of  $2\frac{1}{2}$  inches square with each, will make stereoscopic pictures.

For outdoor work it is generally desirable to use lenses of as short focus as can be had to cover the plate with sharpness, except for very distant scenes, because such lenses include more field on the same size of plate.

For this purpose *alone* the Steinheil, Globe, and Triplet are admirably adapted. A new lens, made by Mr. Roettger, of

Philadelphia, has produced work unsurpassed.

These lenses all requiring small stops, are of course unfit for indoor work, for which *alone* a pair of good  $\frac{1}{4}$  portrait tubes are probably best. Half-size are as good if the distance is sufficient.

It is desirable to use but one set of lenses both in and out-door. Any good  $\frac{1}{4}$  size portrait combination, or Jamin's one-sixth size, would be the best adapted. A pair of the latter, in which I had central stops fitted, have been very satisfactory.

Double combinations must in all cases be supplied with central stops.

I should mention the Dallmeyer portrait combination,  $3\frac{1}{2}$  inches focus, which perhaps is unsurpassed in its sphere for both in and out-door photography. But *all* portrait combinations include a less angle than any of the above-named *special* lenses, and all lenses of such short focus make small images. Hence, for large stereoscopic portraits, the Dallmeyer is not well adapted.

It will be observed, by following the plate through its changes (by marking one end, for example) from the camera to the uncut print, that the picture made with the right-hand lens is presented to the *left* eye, and the left to the right eye, as it comes from the printing-frame. Therefore they must be cut apart and transposed, that each eye may behold the picture taken from its own stand-point.

All objects to be shown in the "width of field" must be brought into about  $2\frac{3}{8}$  inches space on each end of the ground-glass.

The prints being made, washed; and dried in the usual way, mark them all on the backs, from left to right, *across* the *centre*, with a pencil. The marks may be irregular, and from one to two inches long.

By this precaution, if the prints should become misplaced after being cut out, they may be rearranged readily again.

Prepare a glass pattern about 7 inches long, and 3 or  $3\frac{1}{8}$  inches wide, with smooth and *exactly* parallel edges, and a few parallel scratches, with a diamond from one end to the other. These lines serve as guides in cutting the prints. Cut the prints to the *width* of this pattern, placing either the bottom or top, or one of the diamond marks,

to some particular spot on *each* end of the print, so that the same given point in the two pictures in the same print will be equally distant from the top or bottom. If the two images are *twisted* relatively, or one is higher than the other when mounted, they will not superpose, but will look blurred and indistinct.

If the same points are too wide apart, they will strain the eyes, and may not superpose at all.

Perpendiculars should also be observed. This is done first by setting the camera level to take the negative; and second, by adjustment of the patterns in cutting out the prints.

Having cut the prints of proper height, they should be cut apart and of proper width by another pattern prepared as the first one, but whose width must be about  $2\frac{3}{4}$  inches from right to left, of indefinite height, but whose sides must be exactly parallel, and the bottom at right angles with them.

In cutting the prints apart by this pattern, place the bottom of it even with the bottom of the print, and cut the right-hand print first, adjusting the pattern with reference to some point, so that the same points in the two pictures when mounted will not measure *more* than  $2\frac{3}{4}$  inches apart; and  $2\frac{5}{8}$  is better.

Place the prints as cut in a small box or other convenient receptacle, and, when all are cut, take them out one by one, dip them in water, and lay their face down on a piece of glass, one on the other. Paste and mount, the *first* one on the *left* end of the card, and the rest in their order, and it will be observed that they are all to their places, the pencil-marks on the backs being on the side of each picture next to the end of the card, the pictures being transposed.

To facilitate the adjusting of the prints at equal distances from the ends of the cards, place a pack of mounts on their edges and draw a pencil-mark across the pack so as to mark the *edge* of each card in the centre, and place the inner or centre corner opposite this mark.

All other manipulations are the same as in ordinary photography.

Ferrotypes may be made stereoscopically, observing the same general principles, and,

when well made, make very neat pictures, especially of living subjects, and may be fitted into cases fitted with lenses, or mounted upon light cards for the stereoscopic album.

Photographs for the stereoscopic album, as all stereographs, should be mounted on thin cards.

There is no portrait or group equal in beauty and truthfulness to life to the stereoscopic portrait or group, and the time is near when they will come into general use; and the album, filled with choice pictures, and with the stereoscope folded within its lids, will be a common accessory on the centre-table. So photographers should be up and doing, and be active in introducing this most beautiful style of picture among their customers. It is opening an extensive field for profitable employment to the fraternity, and now is the time to push it.

ZANESVILLE, OHIO.

### A Suggestion for the Better Ventilation of Dark-rooms.

BY NELSON K. CHERRILL.

As a rule, no part of the photographic establishment is so badly managed as the dark-room. Not only are the dark-rooms commonly in use often inconveniently small, badly arranged, and insufficiently supplied with the yellow light which constitutes the photographer's idea of darkness, but, worse than all, they are often—more often than not—entirely destitute of the proper means of ventilation. It is, I believe, more from the reckless disregard of this important subject of ventilation in the dark-room than from any "fingering of poisonous solutions" that photographers so often suffer so much ill health. I do not deny that constant dabbling with acrid poisonous solutions may have some injurious effect upon the system; with some it may have more than with others. At all events, it is a subject but little understood as yet. When it is understood, it may lead to some important discoveries, and probably to some improved methods of administering some medicines. There seems an argument in favor of the idea of the skin absorbing



enough of any solution to produce some effect on the constitution from the vast difference in the effect produced between sea-bathing and freshwater-bathing. It does not seem to me at any rate unlikely that the solutions used by photographers, if allowed too much to go upon the hands, may produce some evil effects. Be this as it may, the evil is soon prevented—or rather avoided—in many obvious ways; and those who are wise, and prize clean hands, will do well to bethink themselves of the matter. Meanwhile, one thing is certain: that whatever doubts may exist as to the ill effects of chemicals in water, none can exist as to their effect when suspended in the air. The air we breathe must most certainly enter into the system, and any contamination it may contain stands the best possible chance of being introduced into the system too, producing ill effects according to its nature and proportioned to its amount.

Now, there is no more thoroughly pernicious way of inhaling bad and unwholesome smells than that usually adopted by photographers, viz., by shutting themselves up in small rooms without ventilation, exposed to the fumes of two or three badly smelling and poisonous chemicals. No wonder "Ill health the only cause of leaving" is so often seen in the advertising columns of this and other photographic papers, when men will work from morning till night in such dens of science. I remember seeing it stated in the *News* some time ago by a correspondent, that spiders would not live in dark-rooms, and that even flies were glad to make their escape. No wonder, if there was no ventilation. It seems to me the flies showed more sense in this case than the photographer.

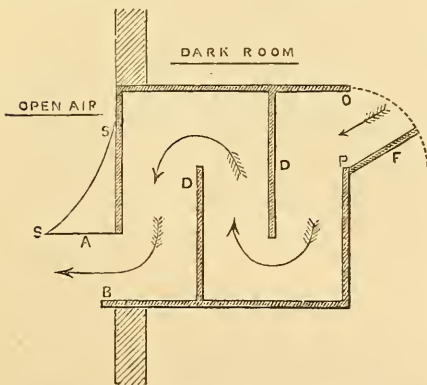
Now it seems that this lack of ventilation in dark-rooms must very often arise from a misconception on the part of the builders or designers. It seems they must think that of course ventilation must *not* be provided, "lest the light come in;" but nothing can be more utterly fallacious than this idea. Air, as every one knows, can go round the corner in a hundred different places where light can have no access. There is not, for instance, one would suppose, very much daylight in a chimney, yet, if the fire burn

well, there is plenty of air-draught. Hence, for a common sitting-room, the fireplace, the door, and the unavoidable cracks in the window, are often thought ventilation enough; and they generally are, especially as in warm weather the windows are thrown open, and thus an abundant supply of air is gained. Now here is where the first mistake is made in dark-room ventilation; it is often thought enough to have a door, a fireplace, and a window (it very often happens, however, that there is no fireplace, and that only makes the matter so much the worse). Now, by the very necessity of the case, both the door and window must be closed up quite tight (not even cracks are allowed; they might let in the light) all the time the operation of preparing and developing a plate is going on; so the photographer gets the full benefit of the smell. When he has quite done, he opens the window and the door, so as to "air the room," and get it ready for a new smell, which, by this arrangement, he has quite fresh with each plate. Now, this is altogether a false mode of procedure. The ventilation of the room should be going on all the time the operator is in it; then it is that the fresh air is wanted, not when he leaves it; and this ventilation that is so necessary cannot be provided, for with the window and door both shut, as is usual, even if there be a fireplace in the room, perfect ventilation involves two air-holes in a room: one for the fresh air to go in at, and the other for the exit of the foul air. Now if both door and window be shut, there is no use in the chimney at the time, because no fresh air can come down it, nor foul get up, by reason of all the other air-holes in the room being stopped up. In a large room, it is true, the evil will not be so much felt as in a smaller one, but then I am now speaking of small rooms especially. A small room well ventilated is as good for all practical purposes as a large one.

Now the means by which I would recommend the air-supply to be managed is by a direct communication being made all along the top of the room between the inner and the outer air. If this would involve too much expense, I would suggest that the ventilator be extended only along the top

of the window. This would do much good, though the effect would not be so complete; also, if there is not an abundant supply of air down the chimney to afford constant fresh air in the room, I would put ventilators of the form about to be described all along the *bottom* of the room too; or, if not all along, as far as circumstances will admit,—the two requirements of a ventilator for this purpose being, first, that while plenty of air can come in, no light shall enter; and secondly, that the amount of air admitted shall be under control, so that in winter the room be not made too cold.

The peculiar form of ventilator which I am now about to describe is one, I think, well calculated to fulfil the above conditions, and as such I hope it may be of service to your readers—to those of them, at any rate, who may wish to improve the ventilation of their dark-rooms. I do not at all know whether I can claim to be the original inventor of this apparatus, or whether I am now recommending a scheme which has been tried before by others; only this, I cannot remember to have ever seen one like it before, either in use or in description. Here is the figure of it shown



in section. It consists of a long box of any length required, with an opening (AB) all along the lower side of the front, and a similar one (OP) all along the upper side at the back. On the inside of the box two partitions (DD) are made: one extending from the bottom to within about six inches from the top, and the other extending from the top to within about six inches from the

bottom. The height of the box is about one foot six inches, and the depth from back to front is but little more. The opening in front (AB) should be the same with the space left above and below the two partitions (DD), and also the same as the opening (OP); the spaces, likewise, between the partitions and the back and front of the box, and between the two partitions themselves, should be of the same size, viz., six inches. A door at F is provided, to shut up to such a degree as may be necessary. The passage of the air through the apparatus is shown by the arrows in the cut. It will be obvious, from a little consideration, that no light can enter the room through the air-passage. SS is intended for an iron or zinc shade, fitted outside, if the apparatus be much exposed to the weather. It would also help to screen the light from the outside opening (AB). Not that there is any fear of the light getting through; draw a ray of light how you will, entering AB and striking the partition D, you will find that you cannot get it out at OP until it has been *reflected* more than ten times. Now, as I would propose to have this box and its partitions all dead black, I do not think the light would have much effect coming through under such conditions. But this is only an imaginary ray of light, for it must enter at the corner B and strike the partition D half-way up. Now, sunlight generally comes down, and does not go up; but the best test is, of course, practice; and were my dark-room in want of ventilation I would soon have one of these things made. It is not, however, in that state, and so I have been content to make a cardboard model instead, and it answers perfectly. The flame of a candle may be held right up to the opening AB, and no light is found to come through the opening OP, even though I did not take the precaution to black the inside of the box or the partitions. Of course the partitions DD must go quite up to the ends of the box, and these ends themselves must be solid.

The cost of making such a ventilator as I have been describing cannot be very great, as there is no work of an expensive character about it: plain, thin deal-board would be the best material to make one of.

If the dark-room looked over water, so that some light might be reflected into the ventilator in an upward direction, it would be a good plan to project the bottom of the box at B slightly forward, though it would be hardly necessary to do even this.

Should these ventilators be put down near the floor of the room, the door F should be hinged from O instead of from P, in order that the last reflection may throw the light down to the floor.

I have often spoken of the air coming down the chimney. It will always do so if the room is warm and the chimney cool, and the air supplied this way would ventilate the room very well in the summer-time; but for perfect action both in summer and winter, a ventilator should be fitted at the floor of the room as well as at the top, especially if it (as in many cases it could) be arranged so that the air taken into the dark-room comes from the glass-house, it there having been warmed for the comfort of the sitter.

The scale of the illustration I have given is one inch to a foot, and the openings are drawn six inches. Of course, the same principle would apply for a ventilator of one inch or one foot six inches. It seems to me a good size to employ, and there is no fear of one being made too large, as the door can easily be made to keep the circulation of air in check.—*Photo. News.*

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### LENSES OF LARGE AND SMALL ANGLE COMPARED.

UNIVERSITY OF PENNSYLVANIA,  
November 6th, 1867.

MR. EDITOR: Having read with great interest and pleasure the article of Mr. George Mathiot, in the last number of your Journal, and feeling sure that it will carry, as it deserves, great weight with all, I am anxious to direct attention to one point which might give an erroneous impression to a hasty reader: and now, with the vast amount to be read, and the little time to read it, all readers must be hasty.

A comparison is made in the above-named article between the Globe and Zentmayer lenses as regards sharpness, and it is stated

that in the experiments described the Globe stood first in this order of merit. We fully recognize the truth of this statement, but yet think that to give it its true, and to save it from a false, significance, the following statement might be added without error, namely, that under the same conditions an ordinary portrait combination would have been superior to both the lenses compared in this respect.

The lenses used were of about eighteen inches focal length, capable, therefore, of covering circles thirty-six inches in diameter. The negatives taken for the test of sharpness were very small, less than an inch across, and thus only the centre of the field was employed. Now this centre, as we all know, is admirably perfect with the lenses of small angle, and in those of wide angle is always more or less sacrificed for the sake of that very width which distinguishes them. Large-angle lenses may, in fact, be considered rather as *equalized* than as corrected with respect to spherical aberration. Their correction in this regard is left almost entirely to the stop, and therefore the centre is in that respect no better off than the edges; while in portrait combinations, which must be used with large apertures, the correction of spherical error must be carefully provided for, and is successfully reached as regards the central portion of the field. Thus, lenses of wide angle should not be compared at the centre, but over the greater part of their field or near the edge, as it is precisely here that their peculiar properties show themselves.

Yours, truly,  
HENRY MORTON.

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### LEAF PRINTS.

BY THE AUTHOR OF "TRIALS OF THE WIFE OF AN AMATEUR PHOTOGRAPHER."

MR. EDITOR: Your graceful book on Leaf Photography was duly received by me, and accompanied by a request that I should give you my opinion of the volume.

Now, I am conscious of possessing some capacity for describing my own trials as the wife of an amateur photographer, but do not know that I have any talent for re-



viewing books. I have taste enough to see that the volume in question is beautifully printed and bound and illustrated, and that the author is evidently a man of science and literary ability; but what can I say about the processes described and commended? I asked myself this question, and the answer was "Nothing." Then it occurred to me that the least I could do in return for your civility in sending the book, was to try the experiments, and make some "leaf pictures" for myself. So hearing my husband's steps pass along the entry, and the closing of the street-door behind him, I stole up into the laboratory (the "*den*," I call it), and commenced to "experiment" with the bottles and dishes there disclosed, as directed by "Leaf Prints."

A dismal place was that dark-closet, where the vials were clustered together, and the dim gas, reduced to a little point of light, was burning. I thought that "Bluebeard's" locked chamber must have been something of the same sort! The awful-looking flasks dimly gleaming on the shelves, suggested dissevered heads; a strange smell, which might be a sanguinary odor, pervaded the place, and there was a drip, drip, drip, from the leaking or partially turned faucet, which must have had its counterpart in the drip, drip, drip, which was made by the blood falling from the heads of the unfortunate wives, whose curiosity tempted them to invade the solemn chamber. And then that towel so awfully stained, which hung on a roller fastened against the door! Had not Bluebeard just such another on which he wiped his hands and scimitar, after he had slain his unhappy victims? I began to feel nervous, and thought I would defer my experiments. Drip, drip, drip, went the faucet, as I walked out of the closet into the room; but then the sun shone in so brightly, and a canary bird in its cage sang so sweetly, and your beautiful green covered and gold ornamented book looked so invitingly, that my courage revived, and I took up "Leaf Prints" and read the motto on the outside, "*Acer dasycarpum*," and accepting it as a sign I resolved to re-enter the closet, and commence my experiments.

If you have patience to read this paper to the end, you will learn how lamentably I failed at first, and how gloriously I succeeded finally. To be sure I was somewhat distracted in my attention to chemicals, by occasional fits of pleased contemplation of the book whose topics are so well treated, and whose typography and pictorial execution are so admirable. It seemed to me to offer to the simplest and most unskilled operator, an easy and sure way of producing beautiful prints of every form of leaf-life; while, at the same time, the skilled photographic artist might find in it matters of interest and profitable suggestion.

If I had a bit of exquisite lace, Mechlin or Maltese, Brussels, Point, Honiton, or Cluny, or embroideries, French, Flemish, German, or English, and wanted to show it to a friend in Cairo or Sitka, I could at once reproduce the pattern, and send it off by post the next mail day; or, if I succeeded in inventing a new pattern of embroidery, how easy to photograph it without a camera in this way, and coerce my friends into admirations of its beauty and my genius by scattering its images among them!

And notice here what a source of profit to the working photographer has been opened by the talented author. He may supply seminaries and schools and academies and colleges with a profusion of botanical specimens, which will be of immense value to them. If the leaf or flower is rare,—from the Holy Land, from some far-off country,—how easy to reproduce its shape and form and very fibres in this way!

Beautiful bouquets, too, and crosses and wreaths of plants and leaves and flowers, may also be made in endless variety, if I follow "Leaf Prints;" and what a joy that will be, thought I. All the elegance of skeletonized leaves and the richest black velvet to be secured on a piece of paper! Shall I not be privileged to make these with the directions so easy in my hands?

Filled with these thoughts, and others of like depth, as I proceeded, like King Alfred, I forgot my cakes, and over-baked the batch, now and then, but the final result was most gratifying. But I fear it would be alike tedious and profitless to tell the details of my disasters. What with the

distractions of mind and attention before named, and the darkness of that dreadful closet, I made awful work among the chemicals! What I mixed, and what I spilled, and what I broke, who shall say? Suddenly I hear the street-door open, and know that my beloved husband has come home. I glide out of the closet and down into my room like a sunbeam, or a mouse, or anything else, as poor Artemas Ward would have said, "that goes very quietly!"

I start my sewing machine forthwith, and begin to hem industriously. By-and-by I hear the amateur photographer go into his laboratory, and I make the wheel of my sewing machine fly faster and faster. "My dear," says the voice out of the dark-closet; *of course* I can't hear it above the noise of my wheel, whirr! whirr! whirr! "My dear!" the voice now grows so loud that I *must* hear it, so I stop the sewing and ask "What is it?" (Don't I know what it is?) "Who has been here upsetting all this nitrate of silver on the floor?" "May it not have been the cat?" "The cat! humph!" When whirr, whirr, goes the wheel again, and "my dear!" shouts the voice. Now is my turn to question: "What, for goodness' sake, is the matter? I can't finish an inch of work for your constant interruptions!"

"Why, my dear, somebody has been mixing up my chemicals, and let the faucet overflow the sink. That can't be the cat, can it?"

Well, I suppose I may better make a clean breast of it, and confess my misdoings, so I mount up to the "den," and explain how in the process of paper-preparing, I get "abstracted in mind," and make some little mistakes, the result of which he has seen, or will by-and-by discover, when he looks further! Well, he is a good soul, and accepts my excuses kindly, and shows me how very simple the process is, if only one don't let his wits wander; and now I make the loveliest pictures imaginable, with little or no trouble. The cat now never gets among the bottles, nor even upsets the nitrate of silver on the floor, but keeps quietly in the kitchen, while I flourish in the laboratory! All success to "Leaf Prints," Mr. Editor. It is a gem

of a little book, and will not only prove a means of filling up the pleasant pastime of those who have it, but as I happen to know, though only the *wife* of an amateur, it contains much of value for the practical everyday photographer. I trust it will tend to popularize your beautiful art, and that your hopes for it may be realized.

### VOICES FROM THE CRAFT.

A GOOD EXAMPLE.—At a meeting of the Photographic Society of New Orleans, held October 19, 1867, it was unanimously agreed to advance the prices of photographs, as it had been ascertained that at the low rate we have been charging it is impossible to give good work and live thereby. Therefore, it is mutually agreed that we will, from and after November 1, 1867, charge the following rates as per schedule below, binding ourselves not to deviate from the same under the penalty of being dishonored and forfeiting the confidence and esteem of the fraternity. In future our aim shall be to excel and advance our beautiful art, instead of, as heretofore, cutting down prices and giving poor work. All lovers of the fine arts will sustain us, and we ask the public generally to encourage us in our laudable efforts:

#### *Schedule of Prices for First-class Galleries.*

Cards, original, per dozen,	\$5 00
" " " half dozen,	4 00
" duplicate, per dozen,	4 00
" " " half dozen,	3 00
Whole-plate, original, each,	5 00
" duplicate, each,	2 00
11 x 14 plate, original, each,	10 00
" " duplicate, each,	4 00

#### *Schedule of Prices for Second-class Galleries.*

Cards, original, per dozen,	\$4 00
" " " half dozen,	3 00
" duplicate, " dozen,	3 00
" " " half dozen,	2 50
Whole-plate, original, each,	4 00
" duplicate, each,	1 50
11 x 14 plate, original, each,	9 00
" " duplicate, each,	3 00

Signed by all New Orleans photographers.

This is certainly a noble step in the right

direction, and we hope the photographers in other cities will follow suit.—Ed.

LOW PRICES.—“I believe there are many who grumble at low prices, who have no right to work a camera at all, and who would do better to first take your Journal and study it and the examples in it, and make their work *worthy* of a good price before they complain. It is my experience that the better work I do the more I can ask for it. If my fellow artists will strive to improve their work, good prices will surely follow, and only those who do badly will have cause to complain. Take the *Philadelphia Photographer*. It is a welcome visitor to me, and will bear reading and re-reading. I always find something of value in it. “J. J. C.”

There is much truth in what J. J. C. says.—Ed.

FOR a dark-tent I use a case or valise made of zinc, with a stout wire around the edges. When closed, it is 8 x 16 x 22 inches. It holds my camera, chemicals, and all the traps necessary to make twenty-five negatives. It opens in the centre, giving a base 32 x 22 inches by 4 inches deep. In the corners are sockets for iron rods  $\frac{1}{4}$  inch thick and 18 inches long, over which I draw a hood made of enamelled cloth lined with yellow muslin. Holes for head and arms are arranged as usual, and closed, when not in use, by elastic bands. I never put my nose or mouth in the tent, and when not using it I lift one corner of the cloth for ventilation. It is not patented, and any good mechanic can readily make one. I can carry it conveniently for many miles, and work it with great pleasure and success.

A. F. CLOUGH.

OXFORD, N. H.

IN answer to your query as to what lens I used to make my interior views of our Masonic Hall, I would say that the view of the *east* was made with a pair of  $2\frac{1}{2}$  Globe lenses, largest diaphragm. There are no other lenses that I have seen that would include so wide a field with so short a focus. I obtained a valuable suggestion from Mr. Lea, in a late number of the *Photographer*. I had tried some views of the hall before, and

succeeded tolerably well, but suffered some from those metallic stains for which he gave a remedy, and which I *supposed* resulted entirely from the long exposure. But in this last trial I immersed the plate as quick as it would bear after coating, and was *delighted* to find that my *old friend* had disappeared. I also applied two thicknesses of wet filtering-paper to the back of the plate. My process is about the same as is generally used, with the exception of developer, which I have not heard of being in use among photographers. It is a modification of a formula I found in the *Photographer* more than a year ago. It was from a “Belgian operator,” I think. I use it:

Water,	. . . . .	40 ounces.
Iron,	. . . . .	1 $\frac{1}{2}$ “
Sulphate of Copper,	. . . . .	$\frac{1}{2}$ “
Glacial Acetic Acid (fluid),	. . . . .	1 $\frac{1}{2}$ “
Or about 11 ounces Acetic Acid,		
Alcohol,	. . . . .	1 $\frac{1}{2}$ “
Ammonia,	. . . . .	50 drops.

This is the most intensely working developer I have ever used, requiring very little redeveloping or strengthening. For these interiors I used a little more iron, though for all work where there is sufficient light the quantity I have given is sufficient. It gave more contrast between lights and shades on these views than the ordinary developer, but I think my success was in some measure owing to it, as the developer can be kept on the plate as long as is desired, without fogging, or any of the frosty appearance in the shadows, as is often seen when a negative is pushed with the ordinary developer. I have tried Anthony's tannin developer, but in my hands this I have given you is superior in many respects to anything I have ever used.

R. J. CHUTE.

BOSTON.

MOUNTING STEREO SLIDES.—I see in your Journal some extracts from Professor Piazzzi Smyth's letter about mounting stereo slides, and I think he is quite correct, as far as glass slides are concerned, because they are best seen in a powerful stereoscope with lenses of short focus. Paper slides, however, will not bear to be magnified so much, on account of the texture of



the paper, and they should never be looked at in a stereoscope when the lenses are less than 6-inch focus, and in such a stereoscope the pictures will bear to be 3 inches from centre to centre. I sometimes cut my slides 4 x 3 inches, and mount them on cards  $4\frac{1}{2}$  x  $7\frac{1}{2}$ , and I find my stereoscope shows them perfectly without any strain upon the eyes. I do not know how you may be situated in America, but here there has been an immense number of trashy stereoscopes sold, which will not show any picture to advantage, however well it may be mounted. A great many people seem to think that a stereoscope is a *stereoscope*, so they invest in the cheapest article they can get. The consequence is, that stereoscopic slides have now very little sale in this country, and until a better class of stereoscopes is purchased by the public, there is little chance of the demand for slides increasing.

GEORGE WASHINGTON WILSON.  
ABERDEEN, SCOTLAND.

### PHOTOGRAPHY IN EAST FLORIDA.—III.

BY REV. H. J. MORTON, D.D.

IF the River St. John's is full of strange and fascinating scenes, admirably adapted to the wants of the photographer seeking fresh and interesting subjects for his camera, and is pervaded by an atmosphere which, at all seasons of the year, from November to June, enables him to work pleasantly in the open air, the region which lies to the east of this river and borders the ocean and includes the city of St. Augustine, is equally fruitful and equally favorable. The point at which you leave the river to reach the coast is, ordinarily, Picolata. Reading so much in the history of the Florida war, of Picolata, and finding the name in such large type on the maps of the State, one looks out from the deck of the steamer, when told that he is approaching the place, to see the steeples of the churches and cupola of the Exchange, which adorn the thriving settlements. But the steamer stops at a rude wooden platform, and the traveller sees, just at its landward extremi-

ty, a single unpainted wooden shanty, and is astonished to find that this is Picolata! It is the terminus or starting-point (as you please) of a great stage-route to the city of St. Augustine. Where are the stables for the horses? If the horses happen to be there at the time, they answer the question by displaying their gaunt forms under the scanty shade of a few trees! The open air is their stable in sunshine, and the open air is their stable in storm, and the same fine open space constitutes the coach-house. A tall dead tree-trunk, hung heavily with drooping moss, was a conspicuous object in the landscape when we visited the place, and a single crow sat on its top, keeping noisy watch over the feeding cattle. Probably the crow is there still, and may be recognized by the visitor of the ensuing season, as wanting a wing-feather in the left pinion, for Florida is a place not fond of changes; and after years of absence, the returning traveller finds all things unaltered. The shanty at Picolata is a wonderfully rickety-looking affair, unpainted and unplastered, and, like the stable and coach-house, very airy. But its kind-hearted hostess, Mrs. Bravo, makes the traveller forget its lack of conveniences, and does a great deal to reconcile to their fate those who may unhappily be detained there by the non-appearance of the stages, which is an accident that sometimes happens. We found no vehicles on hand the day we reached Picolata, and so held on to the steamer till she reached Palatka, and took our chance for coaches on her return trip, when we were more fortunate. The route from Picolata to St. Augustine is over a sandy level, covered with yellow pines. It might be a ride through any pine forests—say through those of New Jersey—so far as the scenery characterizes it, were it not for the *undergrowth* of the woods. Instead of blackberry bushes, and whortleberry bushes, and the like, you see the whole ground covered with *palmettos*. It seems as if myriads of unfortunate ladies had suddenly been swallowed up by a widespread earthquake, which left only their hands holding palm-leaf fans lifted above the surface. Like the ice of the "Ancient Mariner," "the *palms* are here, and the *palms* are

there, and the *palms* are all around," giving a very peculiar aspect to the landscape, and making a traveller from the North feel that he is far from home. A good photograph of one of these palmetto-carpeted pine forests would be very singular and very beautiful. There is no road, but simply a track through the forest, and sometimes the stage-coach finds several tracks to choose from, each driver selecting his own way to avoid wet places and bad places of various kinds. Frequently he has to cross ponds, or puddles, or long lanes of water, where the rain has collected or some swamp has established a permanent pool, or is pouring out its superabundant waters for the benefit of an adjacent swamp lying in a lower level. But the sand underneath the water is generally hard, and one splashes along with a certain sense of security and absence of fear of bog or quagmire, which is quite refreshing. The ride is ordinarily one of five hours, though the distance is only sixteen miles. But the track is heavy, and the stage-horses are small and overworked, and the coaches in general overloaded.\* It is wonderful to behold the amount of luggage heaped on and about the rather rickety conveyances used to transport passengers over this region of pines, sand, and palmettos. If the way were not perfectly level and free from all signs of rocks and stones, the journey could hardly be made in carriages so crowded and overtaxed, without accident. After long-continued or heavy rains, the whole region is under water. Returning from St. Augustine at such a juncture, we did not find three miles out of the sixteen where the track was above the surface of the far-spreading pools. It was "splash, splash, *over the land*," instead of "on through the sea," and the ride would have been very dismal had not the day been very bright, and the scent of the yellow jessamines, with which the air was loaded, very sweet, and the song of the mocking-bird very melodious. Leaving Picolata at three P. M., it was seven and a half o'clock ere we reached the ferry, where the stage-coaches and their oc-

cupants cross the river (the St. Sebastian), and enter St. Augustine. The approach to this ferry was quite picturesque. The night had set in and it was dark. A few billets of "light wood" (Florida pine), full of sap, were burning on the banks of the stream, and revealing the narrow canvas tent in which the keeper of the ferry lodged, and flashing upon the black river that rolled sullenly beyond. Horses and coaches rushed down the bank into the darkness and seemingly into the water! But the hollow sound of hoofs on hard wood suggested a bridge or boat of some sort, and when we followed, we found a huge scow, large enough to float two coaches with their teams and travelling occupants, and used as a substitute for the bridge once there, but destroyed during the war. By means of two ropes running one along either gunwale of the scow, and fastened to piles on the opposite shores, the float and its freight were safely carried across, and in darkness we soon started forward, our driver playing a lively air on a bugle, to inform the good people of St. Augustine that we were about to favor them with our presence.

Starting on a tour of inspection the next morning from the Magnolia House where we had taken up our quarters, we found St. Augustine to be absolutely full of scenes admirably fitted for the camera of the photographer, and were amazed to find that nothing worth having, in the way of pictures, was to be found in the city. The fever of sketching consequently fell on us very heavily, and day by day during a sojourn of many weeks, we were unwearied in the work, till our book was filled, though the material for sketches was not half exhausted. The place indeed is a perfect magazine of views suited to the photographic artist. Fancy the oldest town in the United States, settled originally by the Spaniards, with all the peculiarities of foreign architecture still existing. Its streets narrow and unpaved, but overhung by balconies and lined here by ruins in various stages of decay, there by dwellings in good condition, the houses built of "cochina" or a stone formed entirely of sea-shells, pressed solidly together. Here a palm-tree overtops the garden-wall, there and there an

\* I learn that great improvements have been made recently, both in horses and vehicles.

orange grove. Pass through this open gate, and you see a noble "blue crane" marching about among "crape-myrtle trees," and magnolias and pomegranates. Look through that latticed door and you see the strange form of the "pawpaw," and of the cactus, which has become an actual *tree* of considerable height, and has most extraordinary and brilliant buds and flowers at its extremities. Here is an old wall with the remnants of pilasters and sculptured capitals—there an archway half built up, and here another half cut down. A green and tree-shaded plaza in the centre of the city is faced on one side by a cathedral of ancient form and furrowed walls, surmounted by a most extraordinary belfry, and supplied with a chime of bells which, being once heard, will never be forgotten or forgiven; on the opposite side by a pretty Episcopal church and private residence, shaded with palms and live oaks and "trees of paradise;" on the third or west side by the post-office and court-house, formerly the old Spanish Government House. This plaza was a delightful resort during the winter of 1866-7. Frequent parades of the military stationed at the fort, with their band of music, attracted large numbers of the inhabitants, and when the brilliant array had departed and left the square free, croquet parties occupied the ground, and gave a new interest to the scene.

The fort is a most picturesque and interesting object. It stands at the northern extremity of the sea-wall and looks out towards the ocean. It was beaten and battered by bullets in the days of Spanish occupancy, and the marks of the iron hailstorms are visible on its walls. It has dungeons under its foundations, dark and dismal, where those who entered years ago found skeletons, and those who enter now may find fleas! The most grim and prison-like windows look in upon you as you stand in the centre of the quadrangle; a picturesque stone stairway climbs up the smoke-stained walls, ascending which you find yourself on a parapet commanding many charming views of land and ocean. The pelicans and sea-gulls are dipping and whirling about the bay; the surf is roaring on the long line of sand which lies outside the harbor; while

the city stretches out along the coast behind the sea-wall, and the eye loses itself in the endless pine woods that lie back of the city and fort between the coast and the St. John's River. In this fort the Indian captives taken during the Florida war were confined, and a narrow slit, scarcely large enough, one would suppose, to admit the passage of a man's arm, is pointed out as the aperture through which Co-a-coo-che escaped. A series of most interesting photographs might be made by selecting different portions of this ancient fortress.

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### THEORETICAL AND PRACTICAL PHOTOGRAPHY.

THEORY and practice are two separate and distinct principles, as opposite as the day-dreaming thinker, and the busy, bustling workman, and yet they are conjoined, for the workman often alters and adapts the dreams and theories of the thinker for his own practical purposes, that would otherwise be lost, for general benefit.

This philosophical fact is evolved and proven by the consideration of two of the most important subjects that affect the photographic craft at the present time.

There is a wide-spread desire among thinking photographers to class the photographic art with the fine arts, and there is a universal wish to check the depreciation in the value of photographic labor which seems occasionally to overrun us, affrighting the timid and carrying dismay to all. The frequent reference to these two subjects in the columns of the *Philadelphia Photographer* is the best proof of their importance; but whether the art can be classed and considered as one of the fine arts by the practical photographer who engages in the business for a livelihood, or will be judged to be a mechanical business, to be carried on by rule and line, as it too frequently is, will probably remain an open subject for debate for some time to come, notwithstanding the frequent expositions that may be made on the subject.

Those who are engaged in photographic work, that ever dwell upon the subject, will probably believe that beauty and grace in



position, or softness of shading, is wasted upon the awkward Hibernian, whose early education has been much neglected, and unless his hands are posed directly to the front, with no crook nor subsidence in either shoulder, the work will probably be rejected as bad; and the soft shadows, scarcely perceptible, and prized so highly for their delicacy, will be greeted with the remark, "Be jabbers! and my face is not dirty!" On the other hand, customers of taste and judgment may require all the finest display of a man's artistic ability, and bring forth hidden genius as fully as sculpture or painting on canvas; but the photographer who considers all who enter his gallery with money in purse as "grist to his mill," whether Teutonic, Hibernian, or Italian, will find in the endeavor to satisfy and gratify his customers, that the theory of photography, as a fine art, will give way to the endeavor to please his customers, and *photography as a fine art suffers*.

Notwithstanding this, photography is one of the fine arts. From the amateur or photographer who is able to say, "Sit as I place you, and be content," great conceptions of the beauty of the human form and face may be evolved; his own capability will be developed, and the inspirations of genius may be evoked, but it will be at the expense of a photographic business. The business man pleases his customers, the artist pleases himself.

One cannot but envy those whose lot it is to photograph nature in the open fields, among the whispering trees, near the laughing brooks, where beauty may be viewed in manifold aspects, and where they may choose their own, with none to gainsay its truth, for God made it. There the artist may luxuriate, feeding his mind, and ever gaining grander and nobler thoughts from the contemplation of the Creator's magnificent handiwork.

But the *commercial* value of one's work,—how shall that be regulated? by what process shall one receive a just compensation for the combined labors of body and mind, that is undergone by the photographic art student? Theory has it that a grand combination may be made of the craft, setting a value upon each and every style of

picture made, and thus securing to all that equal proportion of profits which each thinks himself entitled to. But practical experience proves that there are always "black sheep," who wait until prices are regularly established, and then suddenly announce, "Card Photographs, \$1.50 per dozen;" "Whole sized Photographs for \$1.00;" to say nothing of those extraordinary persons who offer four, twelve, sixteen, and even fifty gem pictures, for TWENTY-FIVE CENTS; and thereupon ensues a rush to their galleries, and their neighbors, sick with envy, commence to lower *their* prices, until it is a hurly burly scramble who shall make pictures at the lowest figure, without regard to quality or cost. Yet for this who can name a remedy? Human nature will always be the same, and considerations of general welfare will too frequently be sacrificed for the interest of the individual.

An individual photographer may remedy it, as regards his own place of business, by making a regular custom, and not being dependent upon transient trade; certain galleries may deal only in certain styles of pictures, making a specialty of ambrotype, paper, or painted work; but those operators of a middle class, who deal both with the upper and lower strata of society, must make occasional spasmodic efforts to attract public attention, or be left behind by their "black sheep" neighbors before mentioned. But here arises a question for the careful consideration of the craft. May it not be more justly and profitably done—justly for the fraternity, and profitably for one's self—than by a wholesale reduction in the price of standard pictures? There are a multitude of old and interesting "dodges," forsaken and forgotten, that revived, would attract custom without detracting from the character of one gallery. Auto-photographs, double pictures, rose vignettes, the ivory-type, *anything* dignified with some new name, and prepared in some new shape, would, perhaps, prove an advertisement quite as attractive as a lowering in prices of standard work. Ideas may differ as to what constitutes standard work, but the one who imagines that the old or new peculiarity introduced upon his premises is *the* standard, and consequently contemns all

who may infringe upon his prices, will surely be enlightened by time.

The photographic work, that so far has withstood all assaults, and seems likely to withstand more, is, case ambrotypes, card photographs, and frame pictures. To the few who desire gem pictures to be considered as a standard, and long for the old price, "\$1 per dozen," it may be answered, that gem ambrotypes can never permanently compete with case ambrotypes, and, while albums exist, can never supersede card photographs; consequently they must be classed with the "dodges" as auto-photographs.

What then remains for the photographer to make his trade steady is to *keep improving in the quality of his work*, and not be frightened, nor unduly excited, because of some neighbor falling in the price—and consequently in the quality—of his work, and finding it impossible to continue at that mark, as suddenly rising, and thus presenting the aspect of the weathercock, changing with the wind. Remember, the "race is not always to the swift," and that such men are constantly *selling out*; and let us not forget that trade is dull, duller than it will be, for the cessation of the war stopped a demand for portraits that was over-inflated, and it is now consequently over-depressed. Therefore grumble not, nor be impatient, but engraft upon the heart the motto, "Time overcometh all things."

HOMER I. FELLOWS.

ALBANY, N. Y.

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### NEW YORK CORRESPONDENCE.

THE stated monthly meeting of the Photographic Section of the American Institute, was held on Monday, November 11, 1867, Mr. H. J. Newton in the chair.

I regret exceedingly to note the absence of Mr. Rutherford and Professor Rood, both having been seriously ill, but now removed from danger, and improving—information of moment not alone to your readers, but as well to the world of science.

Before giving an account of what was said and done, I cannot let this opportunity pass without "blowing up" the professional

photographer; in doing so, I propose to ask a question, then answer it. Why is it that photographers of the class named, with but few exceptions, absent themselves from the meetings of photographic societies? There are many reasons, some specious; all poor; all false. Many contend that, inasmuch as the day is devoted to their business, that the evening (though but two or three hours a month), should be devoted to something else. Thus, though they may not say it, nevertheless they think they *know all*, therefore will not attend such meetings; which, did they attend, they would soon discover that most, if not all, know quite as much, and many far more. The really good photographer seldom has a secret; the botch has many, and is forever buying others of any and every adventurer who knocks at the door of his room. Find me a man who, while a member of a society, ever bought a secret process, and I will admit that my estimate of his usefulness has been overestimated.

As a rule, such bodies are made up of amateurs, or of men who, though connected with the art in some way, are not producers of pictures for sale; progressive men; men ready to assist others, and to be by others assisted; men who desire to learn, and who are satisfied that there is yet more for them to learn than they have yet acquired. As a reason why every photographer should, if possible, attend the meetings of the society nearest his home, this fact alone should prove an all-sufficient reason, viz., since such bodies have had an existence, nearly or quite every improvement, chemical or mechanical, has been made by members of such societies. So much for my "blowing up." May it stir up and carry conviction to those photographers who are never known but to such as read their sign-boards!

Mr. Hull exhibited a series of pictures made by F. B. Gage, which were made by his patented process, described in a recent issue of your Journal.

A committee was appointed to make experiments as directed by Mr. Gage, and, until their report and specimens are handed to the Society, it is not worth while to argue upon the merits of his discovery.

Mr. Mason presented for examination three books, published by the Photolithographic Company, letter-press, engravings, and all, produced by Osborne's process; proving conclusively to the most doubting mind, that by and with the aid of photography, there is now a way to reproduce the most expensive and valuable works, more true to the original than heretofore, and at one-quarter the cost which would attend their production by the old process.

One of the volumes was "The Foreign Tour of Brown, Jones, and Robinson," a work altogether of illustrations; which, by this process, was fully equal in every way to the original, astonishingly cheap, and almost beyond the power of any artist to produce at a reasonable price; even admitting that the character and humor of the original drawings could have been preserved (which admits of considerable doubt), without which the work would be next to worthless.

In one of my recent letters I called the attention of your readers to the acetate of morphia process, which, by the way, has fallen far short of proving generally successful. Mr. Newton has, by no little labor and intelligent experiment, succeeded in making it, in combination with tannin, just what we dry workers most sadly want. His process is as follows: Use any good bromo-iodized collodion; in a ten (10) grain tannin solution dissolve, to each ounce, one and a half ( $1\frac{1}{2}$ ) grains of the acetate of morphia; with this treat the plates as in the tannin process. After removing the plate from the silver bath and washing-dish, lay it for a few moments in a weak solution of salt water (about two (2) grains to the ounce), then rinse with water; this is rather a precaution than a necessity; then treat with tannin and morphia as described. Plates prepared in this way are equal to the tannin in keeping properties, and are very nearly as sensitive as wet plates, one minute being fully enough on a dull cloudy day, with a Fitz lens, smallest opening, on a subject where the ordinary tannin plate would have required eight to ten minutes. In developing, first wet the plate with pure water; next flow over a weak solution of silver, and proceed with the ordinary iron developer.

Should this process prove in other hands as successful as it has in the hands of Mr. Newton, then indeed has the much-abused dry plate process stepped into the front rank.

Mr. Henry T. Anthony suggested the use of the alkaline developer, believing that with such on these plates, instantaneous work could be made.

In answer to a question from a member, as to some method of accelerating solar camera printing, Mr. Anthony recommended the use of nitrate of ammonia and oxide of silver for plain paper; but, in a series of experiments on albumen paper, he had found it did accelerate, but, from its alkalinity, would not answer. He prepared the solution by dissolving oxide of silver to saturation in a forty (40) grain solution of nitrate of ammonia.

In mentioning Mr. Anthony, who is of the well-known firm of Messrs. E. & H. T. Anthony & Co., of this city, I do so in a congratulatory way, for I know that by his attendance at our meetings, the photographic community will be benefited, no one being either more ready or more able to instruct, no one a more industrious or more successful experimenter, and no one a more social or genial gentleman.

Much of value and importance was said upon carbon printing, but, as the subject was ordered as the regular one for the December meeting, I defer mention of what was said until after that event.

Ever yours, &c.,

C. W. H.

### PARIS CORRESPONDENCE.

I PROMISED to write you from "over the sea," but I apprehend you think by this time, that I have forgotten all about you, but I have not, and was only waiting for the proper time to come to write about my visit to Messrs. Reutlinger and Salomon, as I regard those two *the best* photographers in Paris.

On the 31st of August I arrived here, and from that date to the 10th of September, busied myself with looking around in general, most of the time in the *Exposition*, where there are plenty of photographs, but as Dr. Vogel says, "they are mostly hung



so high up on the walls, that a minute examination is impossible."

On the 10th, in company with a New York friend, we left Paris for a short tour through Switzerland, Germany, and a portion of Prussia. We visited Geneva, Berne, Freiburg, Martigny, Chamouni, and the Alps generally, returning through Basle, Baden, Baden, Strasburg, Frankfort on the Main, Mayence, and thence down the Rhine to Cologne.

We returned to Paris October 3d, and since then have been busying ourselves most of the time among photographs at the Exposition, and photographers and their galleries in Paris. If my knowledge of French had been more perfect, I probably should have got along much better, but our visits to Mons. Salomon and Herr Reutlinger were very pleasant. At Mr. R.'s, after introducing myself and feeling a little at home, I broached the main purpose of my visit, which was, to secure one of his best negatives for *you* to illustrate the Journal with; but judge of my surprise when he told me that you and he were already corresponding on that same subject, so I thought to myself if that is the case, all I can do is to speak in praise of the Journal, and help matters in general, as much as I can. I did that to the best of my ability, and suggested to Mr. Reutlinger that he had better let me take the negative with me, and have you print them, as it would require a great many, and very perfect prints were required, &c., &c., but, no, he would not *sell* any negative, but he had sent you several specimens and was to print so many at a certain price, and would make every print perfect. Then he showed me some of the cards (Imperial, same as he sent you). They are *gems*. I purchased a dozen and a half of his very best, selected out of several hundreds, for myself; also a dozen cartes-de-visite.

Next day I visited Mr. Salomon; found his residence in an out of the way place. Mr. S. does not "parle Anglais," but he has a lady in his rooms that does. After getting somewhat acquainted, I proposed purchasing one of his photographs; he had but few from which to select, as he seldom sells any, for his class of customers are dif-

ferent from those of any other gallery. He charges 100 francs in gold for the first impression, and 25 francs for duplicates. He makes only the one size, 8 x 10; no cards at all, and pictures only made by appointment. I selected one and paid him the 25 francs, and then proposed his showing me where he made such extraordinary work. He took me all through his two ateliers, one in his garden, only one step to get into it, and the other in a one story building near by. He has his skylight-room over the room he uses for his main business (he is a fine sculptor). I think his beautiful photographs owe their excellence more to the skilful manipulating of "Monsieur," than to any extra points in his skylight. It is considerably larger than Reutlinger's, but both use an ample supply of curtains to shut out the light when necessary.

I visited Mr. Reutlinger the next day, and showed him my photograph I purchased of Mr. S., and proposed buying one of his large ones, so that I could show in America, one of each. He was willing to dispose of one, so I selected one that was in a frame, as being what I considered the *best* in the gallery, but Mr. R. said no, I could not have *that*; it was framed, and if it was taken down it would not be replaced, for they were too busy; but I held to the opinion that as I had one of *Mr. Salomon's best*, I must have one of *his best*, but he returned to his skylight to pose some sitters, and I waited patiently for him. In the meanwhile I argued with the lady in attendance, who was the principal one that spoke English, and acted as interpreter, and who was on my side, that it would be greatly to Mr. R.'s credit to let me have it, and it could be easily replaced, &c., and then she argued with Mr. R.'s wife, and pretty soon they all pitched into Mr. R. and he "*caved*." I got the picture, paid them 25 francs in gold for it. So now I have two as fine photographs as there are in Paris. The one of Reutlinger's is from a retouched negative, but *so* finely done; but how very different it is from Mr. Salomon's, both "*gems of the art*," fully illustrating very different styles of work; you shall see them, and also the cards, &c. I

have been in quite a number of galleries here, and have seen plenty of fine work. I have not seen Dr. Vogel; I was in hopes to meet him here, but he had returned to Berlin; but I saw some very fine photographs of his in the Exposition; also saw some perfectly beautiful work, by Carl Wigand, of Berlin; also by Carl Luck, of same city; and what a lot of "*beauties*" by Messrs. Loescher & Petsch, of Berlin.

Some of the finest work in our line, in the Exposition, came from St. Petersburg, Trieste, Vienna, Warsaw, and Rome.

*Views as are views*, seen in carbon from the establishments of England, Mudd, Wilson, Valentine Blanchard, Colonel Stuart Wortly, Cramb Brothers, all from England and Scotland, cannot be surpassed. We hope to see more of them next week, as I leave Paris on Monday next, and Liverpool the 23d inst. for home.

I find the photographers here not as *liberal* as the American photographers are. There is no such thing as giving away any photographs, they all demand "*your monish*." I have picked up many important items in my line since I left home, and I hope to turn out some very nice work when I get settled down to it once more. I am anxious to hear your opinion of Salomon's work, after a sight at this I have. With much regard, I remain,

Yours, &c.,

WALTER C. NORTH.

MR. EDWARD L. WILSON.

PARIS, October 12th, 1867.

### GERMAN CORRESPONDENCE.

*On Dry Plates—Fisher's Box for Changing Dry Plates—Carbon Process—Negatives Retouched with Oil Paints.*

DEAR SIR: Lately our discussions here have turned once more on dry plates. The numberless discussions of this subject, as well as the endless variety of formulæ, which have been prepared, are pretty good evidence that the "*philosopher's stone*" has not been found yet. It is not my intention to deny, that with different formulæ excellent results have been obtained;

practice has much to do with success, but I do not believe that any one can say, with certainty, that a number of prepared plates will turn out successfully.

My friend Remelé, a very able amateur in the dry plate process, prepared, last year, a number of plates with beer; on a four weeks trip they turned out excellent; he at once recommended his "*beer plates*." This year he again prepared fifty plates, and out of his fifty plates not one turned out a good negative.

Others have had the same experience, and if many praise their own particular dry plate formulæ, we can only compare it to a father's fondness for his offspring.

Many photographers are possessed of that remarkable weakness, which denies all knowledge of the mistakes which happen even to the best operators; they smile whenever the conversation turns on this subject, as if to say these things never happen to me, until some day they get so completely stuck that they do not know which way to turn.

"What do you think of dry plates?" I asked Mr. Braun, of Dornach, some time ago. He does the largest business in Swiss landscapes, and has climbed, with his boxes, mountains and glaciers. His answer was, "I have spent 15,000 francs in experiments on dry plates, but prefer the wet process."

An opinion from such a source signifies much. There are many processes that will do well enough for an amateur, but that does not make them practical. I fully acknowledge the convenience of dry plates, the ease with which they can be transported; but on the other hand the mode of development is by far too inconvenient; for instance, Gordon's albumen process requires sometimes a whole hour for development. Where is there the advantage?

Of all the dry processes the rosin seems to offer the most advantages, as admitting of rapid development, and being more certain in its results.

My friend Hanecker made a number of these plates during the summer, which, while fresh, showed a sensitiveness approaching to wet plates.

Mr. England's formula is very simple: to a good and strongly iodized and brom-

ized collodion about  $2\frac{1}{2}$  grains rosin per ounce of collodion is added; the rosin dissolves very readily.

The plates are coated with this collodion as usual, remain in a bath of the strength of 1 to 10 for about 5 minutes, are washed in ordinary and afterwards in distilled water, and then dried.

The development is done with iron first, and redeveloped with iron and solution of silver; fixing, &c., as usual. The only drawback is that the bath requires sunning after twenty-four plates have been taken.

The plates while freshly prepared are very sensitive, but deteriorate rapidly. This seems to be the case with all dry plates.

I cannot conclude this chapter without mentioning a very nice and simple dry plate apparatus, of which a Mr. Fisher, an amateur, is the inventor. Dry plates, as you know, are placed singly in the plate-holder; Mr. Fisher's apparatus admits of the change of the plates in the plate-holder in open daylight.

The different apparatus at present in use are rather complicated and expensive, and they often make the changing of the plates a difficult matter; Fisher's apparatus is free from these faults.

His plate-box has no grooves, but the plates lie one upon the other, and are only divided from each other by small pieces of pasteboard, which are pasted on the corners of the plates on the collodion side. The box in which the plates lie, has two shutters parallel to the plates; when you open the lower one all the plates fall out, when you open the upper one you can put new plates into it; if, however, you open the lower shutter while the box is firmly held to the plate-holder, then the plates will fall into the plate-holder: the plate-holder has two movable hooks; if you push these in, while the plates are in the plate-holder, then only the lower plate will be held in the plate-holder; by reversing now the whole system (plate-holder and box), all the plates, with the exception of the one which is held by the hooks, will fall back into the box; you now close the plate-holder and box, and separate the two; now I must mention that on top of the last plate there is a small piece of board, a little

larger than the plates, and which, of course, on opening the shutter cannot fall out.

After a plate has been exposed, the upper shutter of the plate-box is opened, the holder is held on to the box, the shutter is opened, and the plate will fall back into the box on the small board; you can then close the box, provide the plate-holder with a new plate, and proceed to take another picture; after all the plates have been used, the piece of board will lay before the opening of the box and prevent the falling out of the already exposed plates, and prevent that the same plate is exposed twice, a circumstance which is not very rare in dry plate photography.

The apparatus contains from 12 to 15 plates; more would make it too heavy, and the shake in changing plates might prove injurious; but it would be easy to carry two or three boxes with plates. The box has to fit light tight to the plate-holder as a matter of course.

The carbon process (or, as we call it here, pigment printing process) progresses here in Germany; the many experiments which have been made by practical men, bring many interesting details to light.

I must mention that your article in the May number of the *Philadelphia Photographer*, has been translated into German, and is the general guide for the practice of the process. The blisters of which you complain can easily be avoided. It is only necessary to place the pictures, after they have been pressed to the hydro-carbon paper, for half an hour in cold water; they will then easily and without blister or failure separate by being placed in warm water.

A drawback to the carbon process is the gray tone of the pictures. Braun and Beyrich have made a brown paper which resembles albumen pictures very much, and gives beautiful depth and half tones.

I feel perfectly convinced that this process is the future of photography. Photographers will soon lose their aversion to the new process, and see the advantages which it offers. Not long ago I was requested to furnish a reproduction of an oil painting representing a moonlight landscape; with silver paper, the printing took a whole day; with the carbon process I



could take ten copies in the same time; this is a great advantage during the dull winter months, when many pictures have to print a whole day, and compensates for the rather different manipulations necessary.

With my new photometer the difficulty of fixing the proper time of printing has been overcome.

I will conclude by describing a very simple mode of retouching.

I use at present oil paint; any kind of oil black is suitable; with a brush which has been dipped in spirits of turpentine or benzine, the paint is diluted to the proper consistency. This paint adheres much better to the varnish than water color, and not only are spots easily covered, but larger places which have come out too dark can be evenly covered; the working with it is much easier than with water color.

Yours, very truly,

BERLIN, Nov. 1st.

DR. H. VOGEL.

## PHOTOGRAPHIC SUMMARY.

BY M. CAREY LEA.

GERMANY.

*Keeping of Albumenized Paper.*—Sugar in the printing bath is affirmed to make sensitized paper keep for a longer time without turning yellow, and also the addition of borax to the albumen before applying to the paper.—*Archiv.*

*Sulphocyanide of Gold Toning Bath.*—Carrier remarks on the subject of this bath, that it keeps very well, only requiring from time to time to have its gold replaced. This is to be done by adding a drachm or two of solution of gold, 5 grains to the ounce, and shaking. As soon as the bath is colorless, it is fit for use.

The bath itself consists of—

Water, . . . . .	20 ounces.
Sulphocyanide of Ammonium, 2 "	
Chloride of Gold, . . . . .	10 grains.

The proofs are thrown into this without previous washing. At first they almost disappear. Then they return of a rusty brown. Sometimes a quantity of spots show themselves, but these again disappear. The prints tone best when held print-side down.

The proportion of sulphocyanide dissolved in the water, may vary from one to twenty up to one to five. The less that is used, the better the half-tones are preserved, but also the less transparent are the shadows and the longer the time of toning. And conversely, the more sulphocyanide the purer the whites and the deeper the blacks, but the half-tones suffer the more. Too much sulphocyanide produces red spots.

After the toning is done the prints should receive a final fixing in the ordinary hyposulphite bath. Too much toning is to be avoided, as the prints deepen remarkably in drying.—*Archiv.*

*Salomon's Pictures.*—In the Berlin *Mittheilungen* we find a communication from Dr. Vogel respecting these pictures, which have been universally considered the best shown at the Paris Exhibition. Dr. Vogel was present while Salomon took a negative. The substance of his observation was, that the walls were very non-reflecting, thus preventing false lights; a canopy overhead affected the illumination somewhat; the light was received from the north by a ridge-roof, and velvet was very liberally used to get its beautiful play of light and shade. The sitter also, was placed six to eight feet from the background. Salomon's portraits have been greatly praised for the relief of the heads—perhaps this distance of the sitter from the background may not be without its influence.

*Sensitive Collodion.*—I showed some time since that Rutherford's photographic spectra demonstrated the fact, that the prevailing idea that the introduction of bromide of silver into collodion improved its sensitiveness to non-actinic colors, was a mistake. That it acted by improving the sensitiveness of collodion to *weak radiations of white light*. No film is sensitive to non-actinic colors, but a bromo-iodized film is much more sensitive to the faint radiations of *white light* that are emitted from all bodies, than one simply iodized. I therefore pointed out that in future we could improve our collodion, not by inquiring whether it was sensitive to this or that non-actinic color, which is all a delusion, but by seeking for sensitiveness to *weak light*.

Vogel has taken up the subject, and has

published the commencement of a paper. He begins by recalling his own observation that a bromo-iodized collodion gave shades to black drapery (this was by reason of the weak white light reflected from the surface), which simply iodized collodion would not. He also recalls some experiments of mine, in which I showed that when the bromide was very largely increased, made twice as much as the iodide, the sensitiveness to weak radiation was impaired, and harsh pictures were obtained. He now proposes to examine the question as to what proportion of bromide to iodide gives the film most sensitiveness to weak light—a most important one to photographers. As yet, only the preliminary remarks have appeared. But one matter of interest must be reported. Struck with wide differences of *quantity* of salting in collodion, he was led to try the comparative effect of strong and weak salting of the same sort. He therefore prepared one collodion containing 5 grains of salting to the ounce, and another containing the same substances in the same *relative proportions*, but double the quantity, 10 grains to the ounce. They were exposed under exactly equal conditions, and similarly developed. The strong salting did not give more intense lights than the weak, but it did give more detail to the shadows, and developed more cleanly and with less tendency to fog.—*Mittheilungen*.

#### ENGLAND.

*Saving Silver*.—Mr. Beverly recommends to save silver in positive printing, especially by avoiding discoloration of the bath, and consequent necessity for use of kaoline, by adding methylated alcohol to it (methylated alcohol is constantly used for cheapness in England; it is probable that ordinary alcohol acts in precisely a similar manner). Also by placing the bath-bottle with a funnel in it, under each sheet as hung up to dry, to catch the drippings, until the next is ready. He further remarks, that when the sheet of paper is laid on the bath, beginning at one corner, there is much less danger of bubbles than if it be doubled and laid on, the middle part first.—*Br. Jr.*

*Breaking Negatives*.—Meagher, whose photographic apparatus received the highest

commendation of all at the Paris Exhibition, has introduced a new pressure-frame that has found much favor. A strip of India-rubber is laid on the flange that carries the negative, so that if the frame warps a little, or if the negative is slightly bowed, the elasticity of the rubber saves the negative from breaking.

The plan is excellent and well worthy of imitation here.—*Br. Jr.*

### PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A MEETING of the Photographic Society was held on Wednesday evening, November 6th, 1867. The Vice-President, Mr. Tilghman, in the chair.

On motion, the reading of the minutes of the last meeting was omitted.

The Treasurer's report was read, showing a balance of \$244.10 in the treasury.

The committee on Mr. Roettger's new lens were discharged, as no lens had been furnished the committee to report upon.

An election for officers was held. The Chairman appointed Messrs. Wenderoth and Wallace tellers, who announced the following gentlemen elected.

Mr. Frederick Graff, President; Dr. Alexander Wilcocks, Mr. John W. Hurn, Vice-Presidents; Mr. Coleman Sellers, Corresponding Secretary; Mr. John C. Browne, Recording Secretary; Mr. S. Fisher Corlies, Treasurer.

The President then appointed as Committee on Publication, Messrs. Sergeant, Davids, and Browne. Room Committee, Messrs. Fassitt, Tilghman, and Borda.

The resignations of Messrs. R. E. Griffith and Charles E. Meyer, were read and accepted.

Mr. Browne exhibited a number of landscape views, made with a Zentmayer lens,  $3\frac{1}{2}$  inch focus. A Nelson Wright changing apparatus was used, instead of a dark-tent. The negatives were taken on half-size plates, showing excellent definition to the edges. Mr. Browne expressed himself as well pleased with the practical working of Mr. Wright's very ingenious invention; although the first time used by him the re-

sult was very satisfactory. The albumen paper upon which these negatives were printed, was made by Mr. D. Hovey, of Rochester, N. Y., really a very fine article, giving great brilliancy and beauty to the finished print.

Messrs. Wenderoth and Wilson described at length, illustrating by experiment as they proceeded, the *carbon printing process*, giving a very clear, interesting, and *practical* illustration of all the various manipulations required to produce the finished carbon picture. No description will be here attempted, as the process used was the same one detailed in the May number of the *Philadelphia Photographer*. The results were entirely satisfactory. Various kinds of tissue were used, and prints of landscapes, copies of portraits, &c., made with like success. The process was entirely novel and new to the majority of those present, and was watched with great interest.

On motion of Mr. Constant Guillou, the following resolutions were unanimously adopted.

*Resolved*, That the special thanks of the Society are eminently due, and are hereby gratefully tendered to Messrs F. A. Wenderoth and E. L. Wilson, for the very lucid explanations, and highly interesting exhibition of the *modus operandi* of the carbon process, with which they have kindly favored us this evening.

Mr. Wilson exhibited to the members a large number of splendid carbon prints, made by M. Adolph Braun, of Dornach, France, showing how much could be accomplished by the carbon process. Mr. Braun is the most extensive worker in carbon in the world, and his prints surpass anything ever shown to the Society. Those exhibited were mostly of Swiss scenery, taken by the panoramic apparatus, and were superb.

Particular attention was called to the extreme beauty of the various gradations of color in the mountain distances of the Swiss pictures. Instead of the ordinary indistinct vision of a mountain, as seen in most of our American views, we have distinct shades of mountain distances; from the pearly gray of 18 or 20 miles to the beautiful detail of the foreground, &c.

They leave nothing to be desired, and their exhibition added much to the interest of the already very interesting meeting, making a feast of carbon seldom enjoyed.

Mr. Wilson also exhibited two albums, each containing fifty of the new size cabinet portraits, specimens sent him by the subscribers to his Journal. They embraced work from the best artists at home and abroad; were much admired, and evidenced great improvement in photography during the past year, and since the introduction of this new and beautiful size. One hundred of such elegant specimens are seldom seen together, and encourage a hope for a great future for our beloved art.

On motion adjourned.

JOHN C. BROWNE,  
Recording Secretary.

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## ON PHOTOGRAPHIC PATENTS.

WHILE we have enough Puritanic pride to delight in the ingenuity and inventive power of our fellow-countrymen, we cannot but look with displeasure and regret upon the disposition shown at the present time to get every little photographic idea, that may come to some thinking brain, patented.

When photography was an infant, scarcely able to exist, trembling and almost friendless, the great discoveries made by its paternal were made free to the world. Since then scarcely a process of value has been discovered that has not been freely published and made known to the world, and given to it *gratis*.

Had it been otherwise where would photography be to-day. "Less degraded than it is now," we hear some one say. Be that as it may, it would not have attained such perfection as it has now, if we had been compelled to pay royalty upon every picture made—for the use of collodion—the iron developer—hypo as a fixing agent—gold for toning—ammonia for fuming—and what not. Poor, miserable, patent-rid photography would yet be struggling away back among the miserable productions of ten years ago.



But if we are not careful, our art will not progress as rapidly as we hope for. Patents are springing up all around us, possessing varied merits. Some of them promise to be of value, while as to the others, it makes very little difference how *secure* they may be made by patents; the more so, the better. But it seems to us the world is growing more and more selfish, and the desire to afflict our beautiful art with patents is seemingly growing. Now this should not be so. There is not a man practising photography to-day, who is not indebted for almost everything he knows, to the free-will offerings of others. Aye, even the process he seeks to patent has, doubtless, been suggested to him by the idea of some one else. We all know how offensive the bromide patent is—the only instance in the early days of photography, where a patent of any value was given, and now only held together by the doctrine of equivalents, which, fortunately for it and unfortunately for us, gives it the power to swindle us. We have all denounced it, and yet there are those who are ready and willing to try to patent ideas and processes of much less importance than the bromide patent.

How much more noble and generous to follow the example of your predecessors, and *give, freely give*, what you know, as you desire others should do to you. "It is more blessed to give than to receive," and you will gain more notoriety, and, we believe, more money by making known your ideas, than by the endeavor to secure them by patent. Moreover, you will thus enable others to take up your ideas, and perhaps improve upon them, greatly enhancing our beloved art and progressing it.

If the great discoverers in photography, whose names are household words to you, had trammelled you with patents, very few of you would have been in the business you are in to-day, and, as we have said, photography would have progressed very little. Be noble then. If you think you have made a valuable discovery, send it to your *Journal* and make it known; and allow it to be discussed. Nothing in this world is so good but what it may be better. Even *your* secret dodges may be improved upon.

Let us, then, hear no more of photographic processes being patented.

"From every mountain side,  
Let freedom ring,"

and the day shall soon come, when photography shall be the highest of the high arts. The bromide patent and the sliding-box patent, and all the other patents shall be buried, and only remembered for the hindrance they have been to the elevation of photography.

### A FEW HINTS ON PACKING.

BY G. WHARTON SIMPSON.

WE have a few hints to offer to photographers on the subject of packing various articles connected with their art. Some of the suggestions we have to offer are probably new; others are old and trite enough, but need repetition, as we have frequent reason to observe in relation to packages reaching us from our readers.

*Packing Photographs for Post.*—Unmounted photographs are generally packed on deal rollers, and travel safely enough; but nine times out of ten they are inevitably injured in unpacking. The picture is rolled on first, and then the wrapping-paper is generally slipped an inch or two under the edge of the picture in commencing to roll round the wrapper. It follows that in tearing off the wrapper, a portion of the picture is frequently torn as well, as the wrapper cannot be torn without tearing the picture, one edge of which is folded over it. When prints are packed in this way, it is, therefore, desirable to roll the prints round the wood first, and then place the wrapper completely over the print, without lifting up the edge of the latter, to place wrapping-paper under it. In all cases avoid tying a piece of string tight round such rolled prints, which leaves a line scarcely ever erased. Where it is desirable to secure the packet more perfectly than by a pasted wrapper, tie a piece of tape round each end of the roller.

But there is a better mode of packing unmounted prints without the use of a wooden roller, and one by which the package is made lighter, whilst the prints are better

protected. The method to which we refer appears to be adopted across the Atlantic, as we derive the idea from the mode adopted by Mr. Notman, of Montreal, in occasionally sending us unmounted photographs. It consists in the use of a tube made of mill-board, or rather, probably, made by taking a sheet of brown paper, covering its surface with glue or paste, and rolling it round a wooden roller until a case of sufficient thickness be formed. Such a paper tube possesses sufficient rigidity to protect the print with greater lightness than the wood. The prints are not rolled on this tube, but rolled lightly up, and slipped within it; they at once spring sufficiently open to fit the inside of the tube tightly, and a notch cut in each end, and a string tied round, prevent risk of the prints either falling out or being abstracted, without infringing the conditions of the book-post. Probably if a demand for such tubes existed, dealers might keep them in stock in lengths, which might be cut up to suit different-sized pictures, as required.

Another hint, of not less importance, in relation to packing unmounted prints, is this: they should always be rolled albumen side outward, not inward, as is customary. A print which has been rolled for a short time with the albumen surface inside, cannot be readily made to lie flat, but constantly curls; whereas, if the albumen surface has been outward, the print lies flat without any difficulty.

In packing card pictures for post there is nothing better than a piece of thin deal board, about one-eighth of an inch thick, planed smooth. This is made rigid, and protects the print better, and is at the same time lighter than millboard. Many firms keep a stock of such cards with a blank direction label ready pasted on, to be filled in for use at any moment.

*Packing Negatives.*—We sometimes receive glass pictures simply packed between two pieces of millboard, and sent by post. They invariably arrive in a hundred shivers, useless for examination, and covering everything around, when unpacked, with dangerous splinters of glass. Nothing but a box or case will protect even a single glass plate for carriage, either by post or other

means. On this subject, perhaps we cannot do better than to quote the regulations of the postal authorities:

"Postmasters are instructed not to receive any letter, &c., which there is good reason to believe contains anything likely to injure the contents of the mail-bag, or the person of any officer of the Post Office. If such a packet be posted without the postmaster's knowledge, or if, at any time before its dispatch, he should discover any such packet, he is directed not to forward it, but to report the case, with the address of the packet, to the secretary. The following are examples of the articles referred to: A glass bottle, or glass in any form; razors, scissors, needles, knives, forks, or other sharp instruments; leeches, game, fish, meat, fruit, and vegetables; bladders or other vessels containing liquids, gunpowder, lucifer matches, or anything which is explosive or combustible."

*Packing Dry Plates.*—There are two objects to be considered in packing dry sensitive plates: safety from fracture, and protection from damp, or foul air, &c. A very simple method of securing the former end, safety, consists in the use of india-rubber bands. One of these placed round each end of a plate allows another plate to be placed on each side of it without risk of injury. It is scarcely necessary to say that the india-rubber should not be vulcanized, as the loose particles of sulphur would ruin a sensitive plate.

Another simple method, introduced by Dr. Hill Norris originally, for packing his dry plates for commercial distribution, consists in the use of strips of paper folded so as to form grooves like the diagram. Two



strips of stout paper, about six inches wide, are dried and folded up four times, making each a fourfold strip about one inch wide. These are folded backwards and forwards as many times as the package is to contain plates: from eight to ten will be found a convenient number. In the paper grooves thus formed, the plates are laid one

over another, one of the paper strips being, of course placed at each end. When all the grooves are full, the back of a plate being outside top and bottom, they are tied round firmly with string, and enveloped in paper, making a compact parcel. This is wrapped up in a piece of thin sheet gutta-percha, also securely tied round, and the whole is then packed in thin sheet lead, and stowed away in boxes. If for long keeping, they should be packed in dry saw-dust.

As damp is a fertile cause of the decomposition of dry plates, it is desirable, if the plates are kept in boxes, to attach a piece of gold-beater's skin, or even a piece of gummed paper, round the junction of the lid, so as to exclude damp and air from the inside of the box.

*Packing Bottles.*—An ingenious method of packing wine-bottles, of course equally applicable to bottles containing photographic materials, has recently been introduced in France, whence enormous quantities of wine are exported. The time and material expended in packing the bottles was of immense value. A great saving in time and risk has been effected by the use of india-rubber rings, which, placed round the bottles, prevent all jar, and, by keeping them apart, renders breakage impossible. When the bottles are unpacked, the rings are put aside for subsequent use.

*Travelling Equipments.*—In packing boxes of chemicals, &c., for travelling, avoid the use of heavy cases difficult to lift, as the heavier the case, the more likely it is to be dropped or knocked about by cabmen, porters, carriers, &c. A convenient handle at the top of a box is a more certain aid to its being lifted about with the top uppermost than any label desiring "this side to be kept up."—*Photographic News.*

## OUR PICTURE.

THERE is no profession that presents a wider scope for the exercise of good taste, mechanical skill and ingenuity combined, than that of photography. Until recently, however, these useful faculties have been called into play very little, attention having been given more specially to *chemical* effects than otherwise.

Now the tide seems to be running in different directions. The desire for *pictures*, as well as likenesses, seems to pervade, and the photographer begins to study, to arrange, and to compose them. That photography may be legally used for such purposes, has been questioned by some who think that it reaches too far, when it strives to imitate the creations of the pencil and the brush.

We are not of this mode of thinking, however, and beg our readers to go on and make photography reach as far as it will. There is a wide field and much to encourage.

One way in which we may attain to success in this direction, is to pay attention to the selection of our accessories, and make them to suit the different seasons of the year. Have one class for spring, a second for summer, a third for autumn, and a fourth for winter. Take into consideration, also, the pastimes and recreations of your people, old and young, and bring them into your pictures. By this method no set of accessories will grow tiresome and worn out, and there will be a freshness—a reality—a *life* about your pictures that no other plan will secure to you.

One who has found this to be the case in his daily practice, is Mr. William Notman, of Montreal, who stands foremost in this particular branch, as will be seen by the excellent specimen of this class of pictures made by him for our present number. Here we have snow, ice, *winter!* grace, ease, a *likeness* and almost *motion* itself, yet all taken within the limits of the glass-room described some time ago in our pages. We also have a complete illustration of our remarks, and a picture appropriate to the present season.

Accompanying it Mr. Notman sends the following excellent remarks, which will be read with great interest, and give an insight into his method of procedure, which he holds as no secret, but freely gives to all.

"One of the greatest luxuries a professional photographer can have, so thinks the writer, is to own a well-lighted sanctum or studio, to which he can retire, and in which he can carry out, without fear of interruption, any fresh ideas which may suggest themselves from time to time. It is



not advisable to disturb the studios or rooms in every-day use, which, if well appointed, ought not only to be carpeted, but abound in suitable pieces of furniture and choice ornaments, such as are usually seen in drawing or sitting rooms. If possible, let such be real, and so arranged that sitters may have somewhat of a home feeling. The sanctum above referred to need not be carpeted, but be covered with some such stuff as Kamptulicon, which looks so brown and shabby to begin with, that you never fear spoiling it, but as occasion requires, with perfect freedom, pile cordwood on it, build cottages, form sandy beaches with boats drawn up, erect tents, plant trees, crowd solid blocks of ice, form snow-wreathed plains, or, as in the case of the picture for this month, introduce a frozen lake or stream, on which the skater may appear to glide. All this, if it does not afford a change of air, at least gives a change of scenery, and by leading you out of the every-day rut invigorates and refreshes the mind. Do not think that carrying out such ideas involves an outlay of money without any return. In most cases it will be found a very profitable branch to add to any photographic business, and as your editor has requested, I will now try to describe how I produced the wintry effects which have met with so much approval.

*"Suitable background.*—This is very essential; the best effects are produced with one of a middle tint of gray, not too strongly broken with dark clouds, and with a few lights near the horizon.

*"Fallen snow.*—This I find, after many experiments, to be best represented by white fur, such as that of the Arctic fox, or by salt; the latter is perhaps the best, as it can be thrown on and about the various objects in the scene.

*"Falling snow.*—There is but one way I know of to produce this effect, but as it is so simple, and answers so well, I have never sought for any other. When the negative is dried and varnished, mix some Chinese white to the proper consistency; a few trials will determine this. Put it in a small vial, say a two-ounce one, introduce into it one of those ingenious contrivances for blowing perfume—to be had at almost

any drug-store—blow a shower of the liquid Chinese white into the air, and while it falls catch as much of it as desirable on the varnished side of the plate, and by judiciously holding the negative, you can so direct it as to give the effect of a slant to the falling snow.

*"Ice,*—Can either be represented by zinc alone, or with a covering of thick plate glass."

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### ADOLPH BRAUN.

PERHAPS the man who is doing the most to further the progress of photography at the present day, is Mr. Adolph Braun, of Dornach. His great work at present, is the production, in carbon, of his magnificent Swiss and Savoyan views, noticed in our editorial columns, and the reproduction by the same process, of the cartoons of the old masters, in the Museum of the *Louvre* in Paris. Of the former there can be but one opinion. Nothing of the kind has ever been produced by the silver process. They possess all the elegancies that perfect negatives and this wondrous process can secure. Of his reproductions we can only say that photography can scarcely hope to go more than one step further than reproducing *fac-similes* of the works of the great masters in art. We say *fac-similes*, because we have them in the very *color* and *shade* of the originals—black, gray, brown, sepia, red, yellow,—all perfect and wonderful. Mr. Braun has a large steam factory in Dornach, and, we are glad to know, has appointed agents in this country. To secure his Swiss negatives he has climbed great peaks, let himself and apparatus down in dangerous places by ropes, crossed glaciers, and encountered all sorts of danger. He has also made thousands of stereographs, which are also for sale by his agents. We are also indebted to Mr. Braun for many practical hints on photography, and hope to present you with a specimen of his carbon work in our next. There can be no doubt of the practicability of the carbon process, after looking at these wondrous pictures. We hope for some remarks from him soon.

## Salad for the Photographer.

THE first part of Dr. Vogel's new book, *Lehrbuch der Photographie*, has appeared.

AN ink for touching up photographs not acted on by time. A correspondent of the *News* recommends a solution of shellac and borax in water, to which is added a suitable portion of lamp-black.

THE *American Artisan* says, "It would be judicious for every photographer to have constantly at hand a bottle of sweet oil, as from one to two gills administered will neutralize the effect of almost any poison.

"It would also be an advantage to have constantly at hand a small quantity of bisulphite of lime, as much that would decompose rapidly will remain for some time unimpaired by the use of a few drops."

THE *Photographer's Assistant* recommends the following plan for *examining stereographs without a stereoscope*, which he says may be easily acquired: "Place a stereo slide upon a table; with a second slide divide the picture, keeping it steady with the tip of the nose. Now press the eyelids gently with the fingers until coalescence of the two binocular pictures is perfect. The hand may now be removed from the eyes, and the picture in full relief may be examined leisurely. After a few trials the pressure of the eyelids may be dispensed with, and a trial made without the additional slide.

"Now, instead of one, we have three pictures before us, the central being the one that attracts us. A few trials will enable any one to view stereo slides with binocular effect, though a plate-glass window intervenes."

THE Hamburg Photographic Society is discussing the size suitable for glass-rooms; an average height of fifteen feet was recommended as most desirable, though when an abundance of light was desired, a less lofty one was considered better.

At the Paris Exposition there were photographs from America, England, Ireland,

Scotland, France, India, Canada, Brazil, Australia, Belgium, Algiers, Hesse, Turkey, Rome, Italy, Russia, Wurtemberg, Baden, Austria, Prussia, Portugal, Spain, Greece, Pays Bas, China, Japan, Egypt, Sweden, Denmark, Norway, Switzerland, and almost everywhere else—a grand—a wonderful collection. Why should we not have a grand collection and exhibition in our country some time?

THOUGH I have seen and read of good plans for emptying solutions out of dishes, I found an easy way of doing it by fitting a cork and two tubes to a Winchester quart bottle, one of which was curved over so far that a stool holding the bottle allowed it to reach the bottom of the dish, and then, by sucking out a little air by the straight tube, the syphon drained off every drop, tilting the dish a little at the end of the operation. Of course any dirt is brought over in this plan, but the fluid is in a much more manageable receptacle than a flat dish, and in no way interfering with filtering or other treatment.

About those bottles that are kept at one's hand in the dark-room, I have found that a cardboard or other cover, instead of a cork or stopper, keeps dust off and prevents evaporation thoroughly. An easy way is to take a wine-glass of good size that has lost its foot, and on this to wind a bit of wet paper; now over this apply bits of brown paper pasted on both sides, and rub well together; lay on what appears an eighth of an inch thick—for when dry it is much thinner—and give a coat outside and in with shellac dissolved in methylated spirit. The cost is next to nothing, the convenience immense, cleanliness greatly improved, no dust to be wiped off a bottle long unused, no bits of cork, &c.

To prevent camera legs slipping, I find a bit of leather with a ring sewn to it, with a bit of rope through the three rings, useful, the leather, being, on a small scale, like the top of a gauntlet, through which the tripod legs go (say), six inches.—*Photo. News*.

## Editor's Table.

PROF. TOWLER.—Our readers will join in our pleasure when we announce to them the engagement of Prof. Towler as one of our staff of contributors. He is so well known in the photographic world, and has done so much for the art of photography and its votaries, that he needs no formal introduction in our pages. His first paper in our Journal will appear in our January issue, and in every issue thereafter he will be heard from. He has several good things in preparation for our readers, and we think we can promise that he will be gladly welcomed by them, and that the new arrangement will prove both pleasant and beneficial to us all. Prof. Towler will cease to contribute to or edit any other journal after the new year begins.

Our purpose in securing and monopolizing his contributions is to assure our readers that we intend to secure the *very best of everything* for them the coming year, talent included. Dr. M. Carey Lea and Dr. H. Vogel will also continue to write for this journal only in the United States.

TO THOSE WHOSE SUBSCRIPTION EXPIRES WITH THE PRESENT NUMBER.—With the current number of this Journal, the subscription of the majority of our subscribers expires. We hardly know what more to say to them than we did to all “the readers of the Photographer,” in our last issue, unless it be that we add that it is important to them and important to us that they *renew their subscriptions at once*.

We have a grand “feast” of photographic “fat things” in preparation for 1868, and sincerely hope to retain all of our old subscribers, and to have many new ones sent in.

The greater the number the better the Journal. We shall begin the year with an unusually large issue, but we cannot agree to save copies for delinquents. If the rush comes we shall have to let the copies go, much as we shall regret to disappoint any who may come late. We expect our January issue to be embellished with a beautiful carbon photograph, which we have ordered at great expense from Mr. Braun, in France. Prof. Towler will also contribute his first paper to our Journal, and a number of valuable articles may be expected from our old contributors. Do not delay then. Renew! Renew! RENEW! RENEW!

PHOTOGRAPHIC MOSAICS FOR 1868.—By dint of great exertion, we have succeeded in getting

out *Photographic Mosaics* one month earlier than usual this year. We do this in order that our readers may have it to enjoy during the holidays, and to buy it for their poorer neighbors, while they are doing the good holiday trade, which we hope they will all have. With the co-operation of our esteemed friend Dr. M. Carey Lea, we have taken unusual pains this year to make *Mosaics* more attractive, interesting, and valuable than ever before. As it is the cheapest book ever published—144 pages for 50 cents—all will have it, and many will be able to buy it for those who feel unable. Besides several original papers, written expressly for its pages by the editors, it contains valuable papers fresh to our readers, from Prof. Towler, G. Wharton Simpson, A.M., and many foreign writers of note, extracts from foreign contemporaries and text-books, and a whole host of good things for the photographer who works and desires to improve. At the urgent request of some of our subscribers, who desire them in more portable shape, we reproduce the series of lectures “To a Class of Troubled Photographers,” in its pages. A beautiful photograph, interesting to all, will also be found in each copy of *Mosaics* for 1868. For contents see advertisement. Now ready for delivery. Sent postpaid for 50 cents. Cloth, \$1.00.

BRAUN'S CARBON PHOTOGRAPHS.—Probably the finest landscape photographs in the world are those made by Adolph Braun, in Dornach (Haut Rhin), France, by Swan's carbon process. We have recently inspected a fresh invoice of them in Messrs. Wilson & Hood's portfolio, which, we think, with many others who have seen them, are the greatest gems of photography we have ever seen. The landscapes are about 10 x 20 in size, and were made with the panoramic lens. They are of Swiss and Savoyan scenery principally. We could scarcely hope for anything more perfect than they are. The detail is peculiarly wonderful. There are huge banks of lofty, fleecy clouds, caught by some photographic prestidigitation, which we cannot explain; magnificent, snow-clad mountain peaks, miles away, in perfect detail; huge rocks frozen and snow-covered, and mighty glaciers in close proximity to lovely valleys, and ripe harvest-fields, so true to nature that one is forced to exclaim, Can photography be so real? One can almost imagine himself on the



spot with these wondrous likenesses of nature before him.

There is nothing *lost* in these pictures. Everything in the negative is faithfully reproduced in minutest detail. Each straggling ray of light, each lingering shadow is caught, great or small, far or near.

In addition to these there are a number of copies of the cartoons, by the old masters, in the museum of the *Louvre*, Paris, which are in red, brown, black, sepia, &c.; but we shall have more to say about them in our next, when we expect to present a specimen by Mr. Braun. Meantime call upon his agents and see them.

BERLIN PHOTOGRAPHS.—From Messrs. Loescher & Petsch, Berlin, we have received four 8 x 10 portraits, from negatives used in printing their specimens exhibited at the Paris Exposition. How shall we convey to our readers an idea of their excellence? We have taken them up and laid them down repeatedly to begin, but are unable to do them justice. Some may say, if they are no better than the picture in your last number, description is unnecessary, but there is no comparison. The first is of a lady, nearly full figure, sitting, in an elegant dress of *point applique* lace. In this we have not only exquisite detail, but the most lovely softness all over. The figure is full, round, and the whole full of vigor.

The next is a bust-figure of a lady; head, full four inches. In this the face is the grand part of the picture, full of half-tone, lovely, and fine; evidently the negative has been skilfully retouched.

The third is of a little child, tired of play, seated to rest with her head lying on a chair. This is a beautiful picture, but is surpassed by the fourth, which is the gem of the set, and represents a lovely little girl resting easily on a cushion, with her book open in her hands. This is almost as perfect as photography can hope to reach. Bold, vigorous, soft, artistic, grand! A picture that will bear close study.

In the three last-mentioned the artists have studied to make the head the principal point of interest, and the light is so directed as to bring it out in most elegant and prominent relief, while the other portions of the figure are made subservient to it. We wish that all of our readers could see them, and if they will call at our office they shall.

We can scarcely conceive how the same parties who can produce such elegancies as these, could send, as a specimen of their work, such pictures as we presented in our last issue. We

can account for it in no other way than this, that they, not being subscribers to our Journal, and having no opportunity to see the elegant work being produced here, thought they were good enough. Moreover, probably looking upon ours as a mere large wholesale order for prints, instead of a method for securing a wide reputation among their fellows, they may have thought it unnecessary that they should be printed and produced with any unusual care. They have not written us and we cannot tell. We ordered the pictures nearly a year ago, and, judging from their cartes that are sold by Wilson & Hood, expected something superior. Their arrival was made known, and with scarcely a look we hurried them to be mounted, and prepared nothing else. When we found out their character, it was too late to substitute, and we were compelled to use them. We are sure that the aforesaid picture was by no means up to Loescher & Petsch's standard of work.

LEAF PRINTS.—Our beautiful and useful book, "Leaf Prints," is meeting an unexpected sale. First orders are being doubled and quadrupled for it, and we shall soon be called to print a second edition. Testimonials in its praise are coming in from all quarters. It is a beautiful present for the photographer's wife to give to her husband, or for the husband to give the wife. There is much of value in it to every working photographer. Price only \$1.25. Mailed, post paid, on receipt of price, by the publishers. For contents see advertisement.

DR. VOGEL'S PHOTOMETER.—We are compelled to lay over the description of this valuable little instrument until a future issue.

THE ART JOURNAL.—An American Review of the Fine Arts. Monthly. Chicago: Martin O'Brien, publisher, 122 Dearborn Street. \$1.50 per annum. The first number of this Journal, dated October 15th, has reached us, and a right sprightly little sheet it is. The publisher promised to enlarge it as he was encouraged, and the second number comes enlarged and greatly improved. He devotes a portion of his space to photography, and the paper on the subject by "J. E. C.," is quite fresh and interesting. We hope this new enterprise will meet all the success it deserves, and believe there is ample material in the West to secure it. We are clubbing with the Art Journal, and will send it and the Philadelphia Photographer for \$6.00 to any address.

THE RESULT OF CARELESSNESS.—One would think that in this intelligent age, and after so many people had “burned their fingers and pockets with oil operations,” that people and particularly photographers, would exercise a little care in using coal oil and alcohol, yet since our last issue, two photographers have been sadly burned in our city—one it is feared fatally—by filling coal oil, and alcohol lamps while they were burning. Such conduct seems at least suicidal, and yet it was the regular habit of these parties to fill their lamps while burning.

The varnishes used in the carbon process are also very inflammable.

A LADY poisoned herself in New York a few days ago, by taking a dose of cyanide of potassium in mistake for rhubarb. A physician was sent for, but before he arrived she died.

A photographic amateur had occasion to use cyanide, and made a solution in the mug used in his bath-room, and out of which it was the custom of his children to go and drink when thirsty. Forgetting it, he left it standing full of the colorless poison, returning just in time to prevent his child from drinking it. Will people ever learn to be careful?

STILL ANOTHER APPLICATION.—A subscriber, who is also the leader of the choir in his church, needing duplicate copies of a certain hymn and the music, soon produced them by aid of his camera, and sends us a proof quite as good as the original. A first-rate idea. What next?

THE PHENOMENON OF THE HORIZONTAL MOON.—Prof. Himes has designed a very curious slide for the stereoscope. It is a diagram illustrating the phenomenon of the horizontal moon. When placed in the instrument two conical frustra appear, one concave the other convex. The same circle is made to seem larger when it is made to seem more remote, illustrating why the moon seems larger when over the horizon than when in the zenith. Published by Wilson & Hood, Philadelphia, and for sale by all stereo dealers. Price 15 cents.

ARCHITECTURAL VIEWS.—Not a few photographers have forsaken the vexations and trials of portrait photography, and devoted themselves to landscape and architectural work. One of the most successful of these is Mr. R. Newell, 724 Arch Street, Philadelphia, from whom seven 8 x 10 architectural views of peculiar excellence lie before us. The most of them are of private residences in the suburbs of our city, and as photographs, they leave *nothing* to be desired.

Elegant sharpness; beautifully soft, and transparent shadows; a careful selection of views, and nice, clear manipulation, prove Mr. Newell to be superior in his line. A view of the Union League Building, Philadelphia,—a very difficult building to get—is most excellent, and, as to sharpness, will bear microscopic examination all over. We seldom see so many views of this class together that are all so excellent.

MR. H. L. BINGHAM, Kalamazoo, Michigan, has favored us with a few cabinet portraits, “to show us how he is getting along.” We feel much interest in the progress of all our readers, and are glad to say that Mr. Bingham is one of those who are *improving* rapidly. His pictures are a credit to him in every way.

MR. HUGH O’NEIL (late C. D. Fredericks & Co.), N. Y., has sent us several Cabinet Portraits which maintain our opinion that this is the most beautiful size ever conceived for the album. It *must* become immensely popular in time. The one of Gen. Sheridan is very characteristic. The positions are very artistically managed.

A SILVER MEDAL was awarded to Mr. F. Gutekunst of our city, for plain photographs exhibited at the late exhibition of the Maryland Institute, held at Baltimore.

MESSRS. J. GURNEY & SON, 707 Broadway, New York, have sent us a catalogue of their publications, a number of which we have already noticed. They are printing one of their excellent cabinet pictures for an early issue of our Journal—one of the specimens which induced the committee to give them the first premium for plain photographs at the Fair of the American Institute, New York.

Messrs. Gurney & Son, are also the publishers of the chromo-lithograph, by Fabronius, of Constant Mayer’s celebrated painting, “*Love’s Melancholy*.” The chromo is so excellent that when placed by the side of the original it is very difficult to tell one from the other. It is sold by subscription only, and is an artistic and commercial success.

MR. J. Q. A. TRESIZE, Zanesville, Ohio, has shown us a very neat and useful design for an album for stereoscopic pictures. It avoids fingering the slides, makes a most convenient receptacle for them, and is an excellent plan for viewing them. A fine present for the holidays.

MR. A. M. ALLEN, Pottsville, Pa., has favored us with some excellent stereographs made near his city, with the Globe lens.

STEREOGRAPHS RECEIVED.—Messrs. G. H. & W. E. Pollock have favored us with some more of their speaking stereo groups, which are very excellent. "Riding his Hobby," "Red Riding Hood," "The Drive,"—all are capitally managed.

MR. A. F. STYLES, Burlington, Vermont, has sent us another parcel of views from dry-plate negatives, which leave very little to be desired. He uses the tannin process recommended by Mr. Hull, taking the precaution to albuminize his plates first. He thinks, circumstances being the same, that dry plates can be worked as successfully as wet.

We would call the attention of dealers especially, to the advertisement of Messrs. Rohaut & Hutinet, successors to *Ch. Dauvois*, Paris. Their manufactures are world-renowned, and in every way excellent.

A SUBSCRIBER is very anxious to secure No. 11, November, 1864, of this Journal. \$1 will be paid for it at this office. Several copies of No. 36, December, 1866; No. 40, April, 1867; No. 44, August, 1867, and No. 25, January, 1865, also wanted at this office, for which 75 cents per copy will be paid.

MR. A. S. ADDIS, who signs himself "A Wanderer in Photography," has sent us two very interesting panoramic views, one of Helena, Montana, and the other of the great Confederate Gulch at Diamond City, Montana, both of which are very curious and well taken, considering the difficulties he had to contend with. Mr. Addis, with his interpreter, contemplates a photographic trip from St. Louis along the line of the Pacific Railroad to Cheyenne, thence to New and Old Mexico. We hope the Indians will not murder him as they did poor Glover.

MR. JNO. F. NICE, has opened a new and elegant establishment at 124 Fourth Street, Williamsport, Pennsylvania, where he is turning out the new and other sizes very creditably. His specimens before us show the careful worker all through, which we like to see and can always detect.

"TRASK'S MAMMOTH PHOTOGRAPH ROOMS removed to No. 40 North Eighth Street, Philadelphia," is the inscription on a tiny carriage being daily drawn around our streets by two active little goats. Novel way of advertising.

MR. E. G. MAIRE, Columbia, Tennessee, writes us that he too received the first premium for his work, at the fair lately held in his county. Glad of it. Who else?

MR. A. F. CLOUGH, Warren, N. H., has our thanks for a number of views in the wild wildernesses of the White Mountains, which generally are well taken. A trifle more exposure here and there would be better, and much improve the picture.

WE are indebted to Mr. James M. Houghton, Lewisburg, Pa., for a very pretty view of an old farm-house, romantically situated near his city. Also for a number of portraits, showing nice, clean, and careful manipulation. We are glad to see him, and all our subscribers, succeeded in getting good results.

VIGNETTE GROUPS.—We have just received from John Heddon, Elkhart, Indiana, a specimen of photo-grouping, which is an exquisite piece of workmanship. You must first hear what this specimen is. On a large oval piece of albumen paper, Mr. Heddon has printed, and presents to us, seven vignetted portraits, all perfectly sharp, bright in tones, and artistically arranged; the middle portrait, larger than the rest, might represent the grandfather; on either side, the father and mother; and above and below, pairs of grandchildren. The group is quite charming, the vignetting is irreproachable. Mr. Heddon, it appears, has taken out a patent for a printing-frame, by means of which he can easily print and vignette any number of portraits on the same paper. We have no doubt there will be a great demand for these frames; in fact, even now, the only difficulty that exists is that the frame cannot be manufactured quickly enough. Mr. Heddon is one of our most experienced and oldest of practitioners in photography, and does not foist upon the public the flimsy inventions of beginners. We wish him all the success which he deserves.

THE REDUCER'S MANUAL, AND GOLD AND SILVER WORKER'S GUIDE. By Victor G. Bloede: New York, Jos. H. Ladd, Publisher. \$2.

The first part of this book is of use to every practical photographer, and teaches in plain, easy style, the saving and reduction of photographic wastes, and gold and silver residues. Comparatively few photographers are aware of the amount of gold and silver they waste in their business, and will open their eyes when they read this useful book, which they should all certainly do. Moreover it teaches you how to save this drain upon your purse, and that is as good as so much silver and gold. The author has adopted the excellent plan of illustrating his meaning by a number of wood-cuts. The whole work is creditable to him, and we hope he will meet his reward.





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